-1300-251-34/987

TM 9-1300-251-34

TECHNICAL MANUAL

DIRECT SUPPORT AND GENERAL SUPPORT
MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
FOR
ARTILLERY AMMUNITION
FOR
GUNS, HOWITZERS, MORTARS,
RECOILLESS RIFLES
AND
40-MM GRENADE LAUNCHERS

This copy is a reprint which includes current pages from Changes 1 through 17.

HEADQUARTERS, DEPARTMENT OF THE ARMY

JANUARY 1975

D/01.11:

READEX FICHE best copy available

WARNINGS

Do not use any electrical equipment around ammunition unless it has a National Electrical Code rating of Class I for flammable vapor, Class II for explosive dusts (including ammunition), or is dual rated if both vapor and dusts are present.

Ground all ammunition containing explosives while working on it.

Fuze cavity liner must be in place prior to cleaning fuze well or threads with small stainless steel brush.

Change No. 17

TM 9-1300-251-34
C17

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 18 December 1987

Intermediate Direct Support and Intermediate General Support (Including Repair Parts and Special Tools List) for

ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES, AND 40MM GRENADE LAUNCHERS

TM 9-1300-251-34, 30 January 1975, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a vertical bar adjacent to the identification number. Pages B-9 and B-10 are being reprinted to correct printing error.

Remove pages	Insert pages
A	A
i thru iii (iv blank)	i thru iii (iv blank)
2-3 and 2-4	2-3 and 2-4
3-5 and 3-6	3-5 and 3-6
B-9 and B-10	B-9 and B-10
D-1 and D-2	D-1 and D-2
D-23 and D-24	D-23 and D-24
D-24.1 (D-24.2 blank)	D-24.1 (D-24.2 blank)
None	E-1 thru E-5

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:
R.L. DILWORTH
Brigadier General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-40A-R, Direct Support and General Support Maintenance requirements for Artillery Ammunition.

Change
No. 16

TM 9-1300-251-34
C16

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 30 September 1987

Intermediate Direct Support and Intermediate General Support (Including Repair Parts and Special Tools List)
for

ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES, AND 40MM GRENADE LAUNCHERS

TM 9-1300-251-34, 30 January 1975, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a vertical bar adjacent to the identification number.

Remove pages	Insert pages
A	A
iii (iv blank)	iii (iv blank)
3-7 and 3-8	3-7 and 3-8
B-3 thru B-8	B-3 thru B-8
D-1 and D-2	D-1 and D-2
None	D-44.1 (D-44.2 blank)
D-56.1 thru D-56.3	D-56.1 thru D-56.3 (D-56.4 blank)
None	D-64.1 (D-64.2 blank)
None	D-66.3 thru D-66.5 (D-66.6 blank)

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR
General, United States Army
Chief of Staff

Official:
R.L. DILWORTH
Brigadier General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-40A-R, Direct Support and General Support Maintenance requirements for Artillery Ammunition.

Change
No. 15

TM 9-1300-251-34
C15

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC , 12 November 1986

Intermediate Direct Support and Intermediate General Support (Including Repair Parts and Special Tools List)
for

ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES, AND 40MM GRENADE LAUNCHERS

TM 9-1300-251-34, 30 January 1975, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a vertical bar adjacent to the identification number.

Remove pages	Insert pages
A	A
i and ii	i and ii
3-7 and 3-8	3-7 and 3-8
D-1 and D-2	D-1 and D-2
None	D-12.1 (D-12.2 blank)

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:
R.L. DILWORTH
Brigadier General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-40A-R, Direct Support and General Support Maintenance requirements for Artillery Ammunition.

Change
No. 14

TM 9-1300-251-34
C14

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC ,6 June 1986

Intermediate Direct Support and Intermediate General Support (Including Repair Parts and Special Tools List) for

ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES, AND 40MM GRENADE LAUNCHERS

TM 9-1300-251-34, 30 January 1975, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a vertical bar adjacent to the identification number. The TM title on this change sheet has been updated to agree with MRSA letter dated 25 July 1985. The revised title is applicable throughout this manual.

2. Change 13, dated 15 May 1985, to this manual was inadvertently printed incorrectly. Pages 4-3, 4-4, B-9, B-10, B-10.1 and B-10.2 are included in Change 14 to correct the printing error.

Remove pages	Insert pages
None	A
i thru iii (iv blank)	i thru iii (iv blank)
3-3 thru 3-8	3-3 thru 3-8
3-8.1 and 3-8.2	3-9 and 3-10
4-3 and 4-4	4-3 and 4-4
A-1 and A-2	A-1 and A-2
B-5 and B-6	B-5 and B-6
B-9 and B-10	B-9 and B-10
B-10.1 (B-10.2 blank)	B-10.1 (B-10.2 blank)
B-13 thru B-15 (B-16 blank)	B-13 thru B-15 (B-16 blank)
D-1 and D-2	D-1 and D-2
D-56.1 and D-56.2	D-56.1 and D-56.2
D-56.3 (D-56.4 blank)	D-56.3 (D-56.4 blank)

3. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR
General, United States Army
Chief of Staff

Official:
MILDRED E. HEDBERG
Brigadier General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-40A-R, Direct Support and General Support Maintenance requirements for Artillery Ammunition.

**Change
NO. 13**

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 15 May 1985

Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools Lists) for

ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES AND 40MM GRENADE LAUNCHERS

TM 9-1300-251-34, 30 January 1975, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a bar adjacent to the identification number.

Remove Pages	Insert Pages
4-3 and 4-4	4-3 and 4-4
B-9 and B-10	B-9 and B-10
None	B-10.1 (B-10.2 blank)

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

DONALD J. DELANDRO
Brigadier General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-40, Direct Support and General Support Maintenance requirements for Artillery Ammunitions.

Change }
NO. 12 }

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 23 January 1985

Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools Lists) for

ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES AND 40MM GRENADE LAUNCHERS

TM 9-1300-251-34, 30 January 1975, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a bar adjacent to the identification number.

Remove Pages	Insert Pages
i and ii	i and ii
3-3 and 3-4	3-3 and 3-4
4-3 and 4-4	4-3 and 4-4
4-4.1 (4-4.2 blank)	4-4.1 (4-4.2 blank)
4-15 and 4-16	4-15 and 4-16
4-16.1(4-16.2 blank)	4-16.1 and 4.16.2

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-40, Direct Support and General Support Maintenance requirements for Artillery Ammunitions.

CHANGE)
)
NO. 11)

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 16 Oct 1984

Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools Lists) for

ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES AND 40MM GRENADE LAUNCHERS

TM 9-1300-251-34, 30 January 1975, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a vertical bar adjacent to the identification number.

Remove Pages	Insert Pages
iii	iii (iv blank)
B-1 and B-2	B-1 and B-2
B-5 thru B-10	B-5 thru B-10
D-1 and D-2	D-1 and D-2
None	D-15.1/(D-15.2 blank)

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-40, Direct Support and General Support Maintenance requirements for Artillery Ammunitions.

CHANGE }
No. 10 }

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 11 September 1983

Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools Lists) for

ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES AND 40MM GRENADE LAUNCHERS

TM 9-1300-251-34, 30 January 1975, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a bar adjacent to the identification number.

Remove Pages	Insert Pages
i and ii	i and ii
3-7 thru 3-8.2	3-7 thru 3-8.2
4-3 and 4-4	4-3 and 4-4
4-4.1 (4-4.2 Blank)	4-4.1/(4-4.2 Blank)
B-3 thru B-10	B-3 thru B-10
B-15 (B-16 Blank)	B-15 (B-16 Blank)
D-1 and D-2	D-1 and D-2
D-47 and D-48	D-47 and D-48
D-71 and D-72	D-71 and D-72

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-40, Direct Support and General Support Maintenance requirements for Artillery Ammunitions.

CHANGE No. 9

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *11 February 1983*

Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools Lists) for

ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES AND 40MM GRENADE LAUNCHERS

TM 9-1300-251-34, 30 January 1975, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a bar adjacent to the identification number.

Remove pages	*Insert pages*
3-7 and 3-8	3-7 and 3-8
3-8.1 and 3-8.2	3-8.1 and 3-8.2
4-3 and 4-4	4-3 and 4-4
4-4.1/(4-4.2 blank)	4-4.1/(4-4.2 blank)
4-15 and 4-16	4-15 and 4-16
4-16.1/(4-16.2 blank)	4-16.1/(4-16.2 blank)
B-9 through B-12	B-9 through B-12
C-1 and C-2	C-1 and C-2
D-73/(D-74 blank)	D-73/(D-74 blank)

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-40, Direct Support and General Support Maintenance requirements for Artillery Ammunitions.

C8

CHANGE }
No. 8 }

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 17 June 1982

Direct Support and General Support Maintenance Manual
(Including Repair Parts and Special Tools Lists)
for
ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES AND 40MM GRENADE LAUNCHERS

TM 9-1300-251-34, 30 January 1975, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a bar adjacent to the identification number.

Remove pages	Insert pages
3-7 and 3-8	3-7 and 3-8
4-15 and 4-16	4-15 and 4-16

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:
ROBERT M. JOYCE
Brigadier General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-40, Direct and General Support maintenance requirements for Artillery Ammunition.

TM 9-1300-251-34

C 7

CHANGE
No. 7

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *27 October 1981*

Direct Support and General Support Maintenance Manual
(Including Repair Parts and Special Tools Lists)
for
ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES AND 40MM GRENADE LAUNCHERS

TM 9-1300-251-34, 30 January 1975, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a bar adjacent to the identification number.

Remove pages	*Insert pages*
i through iii	i through iii
3-1 and 3-2	3-1 and 3-2
3-7 and 3-8	3-7 and 3-8
None	3-8.1 and 3-8.2
4-1 through 4-4	4-1 through 4-4
None	4-4.1/(4-4.2 Blank)
4-7 through 4-12	4-7 through 4-12
4-15	4-15 and 4-16
None	4-16.1/(4-16.2 Blank)
A-1 and A-2	A-1 and A-2
B-1 through B-8 B-8.1 and B-8.2 B-9 through B-12 B-12.1 and B-12.2	B-1 through B-15
C-1 and C-2	C-1 and C-2
D-1 and D-2	D-1 and D-2
D-17 and D-18	D-17 and D-18
D-47 and D-48	D-47 and D-48
None	D-60.1/(D-60.2 Blank)
D-63 and D-64	D-63 and D-64
D-69 and D-70	D-69 and D-70
None	D-73/(D-74 Blank)

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:
ROBERT M. JOYCE
Brigadier General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-40, Direct and General Support maintenance requirements for Artillery Ammunition.

CHANGE }
No. 6 }

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *10 October 1980*

Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES, AND 40-MM GRENADE LAUNCHERS

TM 9-1300-251-34, 30 January 1975, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by the bar adjacent to the identification number.

Remove pages	*Insert pages*
i through iii	i through iii
1-1	1-1
B-7 and B-8	B-7 and B-8
D-1 and D-2	D-1 and D-2
D-65 and D-66	D-65 and D-66
None	D-66.1 and D-66.2
None	DA Forms 2028-2

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Major General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-40, Direct and General Support Maintenance requirements for Artillery Ammunition.

TM 9-1300-251-34
C5

CHANGE No. 5

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *11 May 1979*

Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for

ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES, AND 40-MM GRENADE LAUNCHERS

TM 9-1300-251-34, 30 January 1975, is changes as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by the bar adjacent to the identification number.

Remove pages	*Insert pages*
iii	iii (reverse blank)
A-1 and A-2	A-1 and A-2
B-7 and B-8	B-7 and B-8
B-8.1 and B-8.2	B-8.1 and B-8.2
B-12.1 and B-12.2	B-12.1 and B-12.2
D-71	D-71 and D-72

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

BERNARD W. ROGERS
General, United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Major General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-40, Direct and General Support maintenance requirements for Artillery Ammunition.

TM 9-1300-251-34
C 4

Change }
No. 4 }

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *15 November 1978*

Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools List) For ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES, AND 40-MM GRENADE LAUNCHERS

TM 9-1300-251-34, 30 January 1975, is changed as follows:

1. *Pages D-3 through D-71*, Change 3, 31 August 1978. Change the Change number in the running foot from "Change 1" to read, "Change 3".
2. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page.

Remove pages	*Insert pages*
3-1 and 3-2	3-1 and 3-2
3-7 and 3-8	3-7 and 3-8
4-5 and 4-6	4-5 and 4-6
B-7 and B-8	B-7 and B-8
None	B-8.1 and B-8.2
B-11 and B-12	B-11 and B-12
None	B-12.1 and B-12.2

3. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

BERNARD W. ROGERS
General, United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Brigadier General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-40, Direct and General Support maintenance requirements for Artillery Ammunition.

CHANGE }
No. 3 }

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *31 August 1978*

Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES, AND 40-MM GRENADE LAUNCHERS

TM 9-1300-251-34, 30 January 1975, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the outer margin of the page. When an entire chapter, section, appendix, or index is revised, the bar is adjacent to the title only. Added or revised illustrations are indicated by the bar adjacent to the identification number.

Remove pages	*Insert pages*
i through iii	i through iii
A-1 and A-2	A-1 and A-2
B-1 through B-8 B-8.1 B-9 through B-12	B-1 through B-12
C-1 and C-2	C-1 and C-2
D-1 through D-61	D-1 through D-71

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

BERNARD W. ROGERS
General, United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Brigadier General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-40, Direct and General Support maintenance requirements for Artillery Ammunition.

CHANGE }
No. 2 }

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *15 December 1977*

Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES, AND 40-MM GRENADE LAUNCHERS

TM 9-1300-251-34, 30 January 1975, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page.

Remove pages	*Insert pages*
3-7 and 3-8	3-7 and 3-8
B-7 and B-8	B-7 and B-8.1
B-11 and B-12	B-11 and B-12
D-1 and D-2	D-1 and D-2
D-55 and D-56	D-55 and D-56

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

BERNARD W. ROGERS
General, United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Brigadier General, United States Army
The Adjutant General

Distribution:
To be distributed in accordance with DA Form 12-40, Section III Direct and General Support Maintenance requirements for Artillery Ammunition.

CHANGE }
NO. 1 }

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *28 February, 1977*

Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools List)

ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES, AND 40-MM GRENADE LAUNCHERS

TM 9-1300-251-34, 30 January 1975, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page.

Remove pages	*Insert pages*
3-7 and 3-8	3-7 and 3-8
B-7 and B-8	B-7 and B-8
B-11 and B-12	B-11 and B-12
D-1 and D-2	D-1 and D-2

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

BERNARD W. ROGERS
General, United States Army
Chief of Staff

Official:
PAUL T. SMITH
Major General, United States Army
The Adjutant General

DISTRIBUTION:

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When applicable, insert latest change pages and dispose of superseded pages in accordance with applicable regulations.

LIST OF EFFECTIVE PAGES

Reproduction for nonmilitary use of the information or illustrations contained in this publication is not permitted without specific approval of the U.S Army Armament, Munitions and Chemical Command. The policy for military use reproduction is established in AR 380-5.

Total number of pages in this publication is 155 consisting of the following:

Page No.	*Change No.
Cover	0
Inside Cover	0
A	17
i thru iii	17
iv Blank	0
1-1	6
1-2 Blank	0
2-1 thru 2-3	0
2-4	17
3-1 and 3-2	7
3-3 and 3-4	1
3-5 and 3-6	17
3-7	16
3-8	15
3-9 and 3-10	14
4-1 thru 4-3	7
4-4	13
4-4.1	12
4-4.2 Blank	12
4-5 and 4-6	4
4-7 thru 4-11	7
4-12 thru 4-15	0
4-16	12
4-16.1	12
4-16.2	12
A-1 and A-2	14
B-1	0
B-2	11
B-3	7
B-4 thru B-6	16
B-7	10
B-8	16
B-9 and B-10	14
B-10.1	14
B-10.2 Blank	14
B-11	9
B-12	7
B-13 thru B-15	14
B-16 Blank	14
C-1 and C-2	9
D-1	17
D-2	17
D-3 thru D-12	3
D-12.1	15
D-12.2 Blank	15
D-13 thru D-23	3
D-24	17
D-24.1	17
D-24-2 Blank	17
D-25 thru D-44	3
D-44.1	16
D-44.2 Blank	16
D-45 thru D-47	3
D-48	10
D-49 thru D-56	3
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*Zero indicates an original page.

*TM 9-1300-251-34

TECHNICAL MANUAL)
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No. 9-1300-251-34)

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, *30 January 1975*

Intermediate Direct Support and Intermediate General Support (Including Repair Parts and Special Tools List) for

ARTILLERY AMMUNITION FOR GUNS, HOWITZERS, MORTARS, RECOILLESS RIFLES AND 40-MM GRENADE LAUNCHERS

REPORTING OF ERRORS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, or DA Form 2028 (Recommended Changes to Publications and Blank Forms), directly to Commander, US Army Armament, Munitions and Chemical Command, ATTN: AMSMC-MAY-T (D), Picatinny Arsenal, New Jersey 07806-5000. A reply will be furnished directly to you.

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*This manual supersedes so much of TM9-1300-203, 6 April 1967, including all changes and TM 9-1320-241-12, 9 Jan 1970, including all changes, as pertains to Direct Support and General Support maintenance.

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CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This is one of a series of manuals on maintenance of artillery ammunition for guns, howitzers, mortars, recoilless rifles and 40-MM grenade launchers. Information in this manual is limited to the responsibilities of direct and general support maintenance personnel.

b. Operating instructions and operator-level maintenance are covered in the weapon manuals listed in appendix A. Organizational level maintenance is covered in TM 9-1300-251-20, which also contains the Maintenance Allocation Chart (MAC). Authorized procedures for each level of maintenance, including direct and general support, are specified in the MAC.

1-2. Forms, Records, and Reports

a. Forms generally applicable to units maintaining this materiel are listed in appendix A. A current listing of all forms is maintained in DA Pam 310-2. TM 38-750 contains instructions on applicability and completion of forms.

b. Ammunition Data Cards will be annotated to reflect major maintenance operations in accordance with TM 9-1300-250.

c. A record should be kept of each inspection job undertaken on an Ammunition Condition Report (ACR).

1-3. Delete

Section II. DESCRIPTION AND DATA

1-4. General

Description and data on this ammunition are contained in TM 9-1300-251-20. Refer to the applicable operator and organizational maintenance manuals for detailed operating instructions.

Section III. SAFETY, CARE, AND HANDLING

1-5. General

a. For general information on safety, care, and handling of ammunition, refer to TM 9-1300-206, TM 9-1300-250, and TM 9-1300-251-20.

b. Specific information on safety, care, and handling is contained in the applicable operator's and organizational maintenance manuals.

c. Specific safety precautions, warnings, and cautions relating to the maintenance operation are incorporated with the maintenance procedures for the ammunition item.

CHAPTER 2

TOOLS AND EQUIPMENT

2–1. General

a. Tools and equipment having general application to this materiel and used by direct support and general support organizations are authorized for issue as required by tables of allowances (TA) and tables of organization and equipment (TOE).

b. Tools and equipment required for ammunition maintenance will usually be available in the direct support tool set (SC 4940-95-CL-A11) and the general support shop equipment (SC 4925-95-CL-A03) or another tool set authorized under TOE's for the organization.

2–2. Repair Parts and Special Tools

Refer to appendix B for the repair parts and special tools list RPSTL).

2–3. Fabricated Tools and Equipment

a. General. Local fabrication of tools and equipment is only permitted when required to perform an authorized maintenance function. When approved drawings and specifications (see *b* and *c* below) are not available, design must meet all safety requirements and be approved by local safety officer.

b. Lifting Ring-Torque Wrench Adapter. Obtain a standard 1-1/4-inch socket, with a 1/2-inch drive and cut out according to figure 2-1.

c. Paint Rack for Fixed Ammunition. Construct an improvised paint rack(s), using sturdy and appropriate materials as described in table 2-1, according to figure 2-2. Use hand-and/or power-saws to cut lumber to specified dimensions.

Table 2-1. Material Required for Painting Rack

Part No	Quantity required	Title	Basic size
1	26	Rubber pad.	2 3/4 in. x 1/2 in. x 1/16 in.
2	1	Notched support.	2 x 6, 12 ft long
3	2	Notched support.	2 x 3's, 12 ft long
4	1	Notched support.	2 x 4, 12 ft long
5	2	Notched support.	2 x 6's, 12 ft long
6	6	Vertical support.	2 x 6's, 2 ft 10 1/2 in. long
7	3	Upper support.	12 x 6's
8	6	Angle support.	2 x 6 (see fig. 2-2)
9	3	Base support.	2 x 6's, 5 ft long
10	6	Upright long.	1 x 4's, 2 ft 5 3/4 in. long approx
11	2	Step, long.	2 x 6's, 9 ft 9 in. long approx
12	4	Step, short.	2 x 6's, 4 ft 10 in. long approx
13	1	Stiffener.	2 x 6, 3 ft 8 1/2 in. approx
14	3	Cross support.	1 x 6, 2 ft 7 1/2 in. long approx
15	1	Nailer.	2 x 4, 12 ft long
16	1	Bottom support.	2 x 6, 12 ft long
17	6	Upright, short.	1 x 4's, 2 ft 4 1/8 in. long approx
18	2	Lateral support.	1 x 6's, 12 in. long

NOTE

Six (6) penny nails required when nailing items 9, 14, 17 and 18. Eight (8) penny nails to be used in all other nailing requirements.

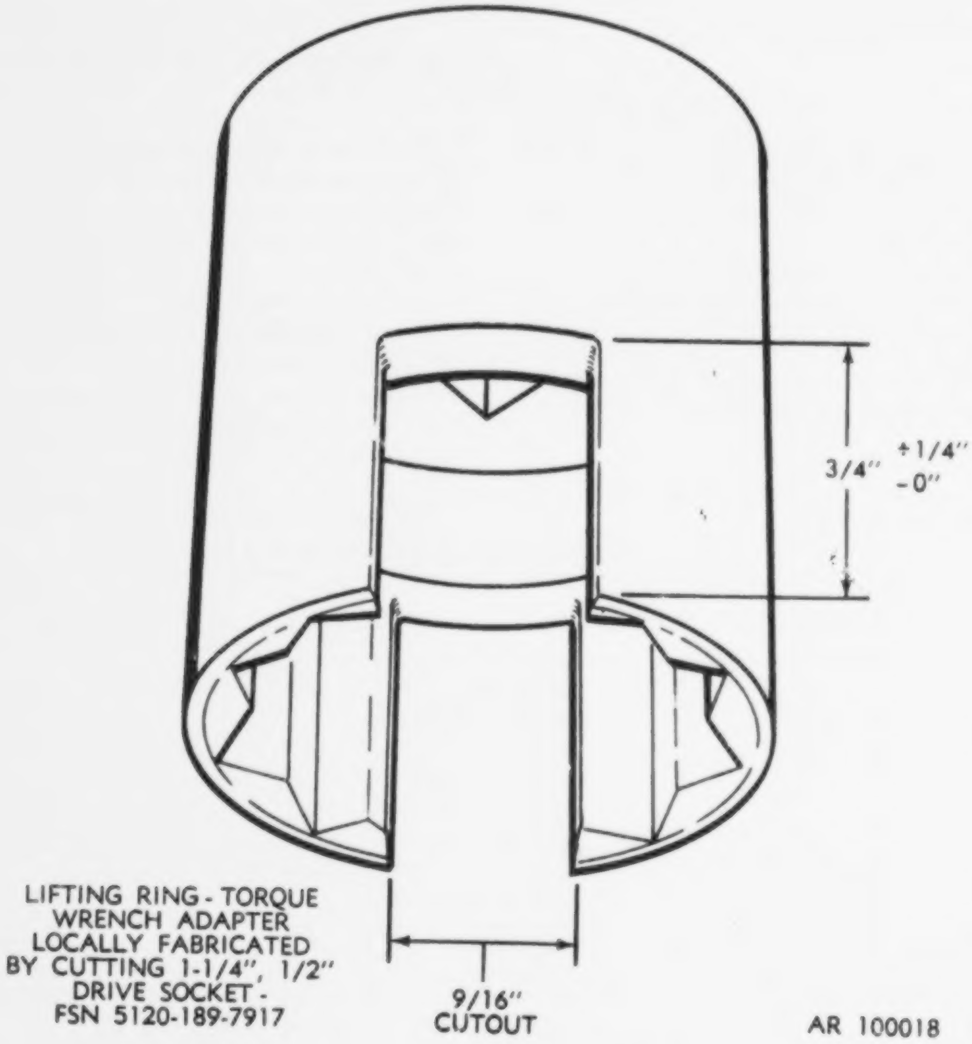
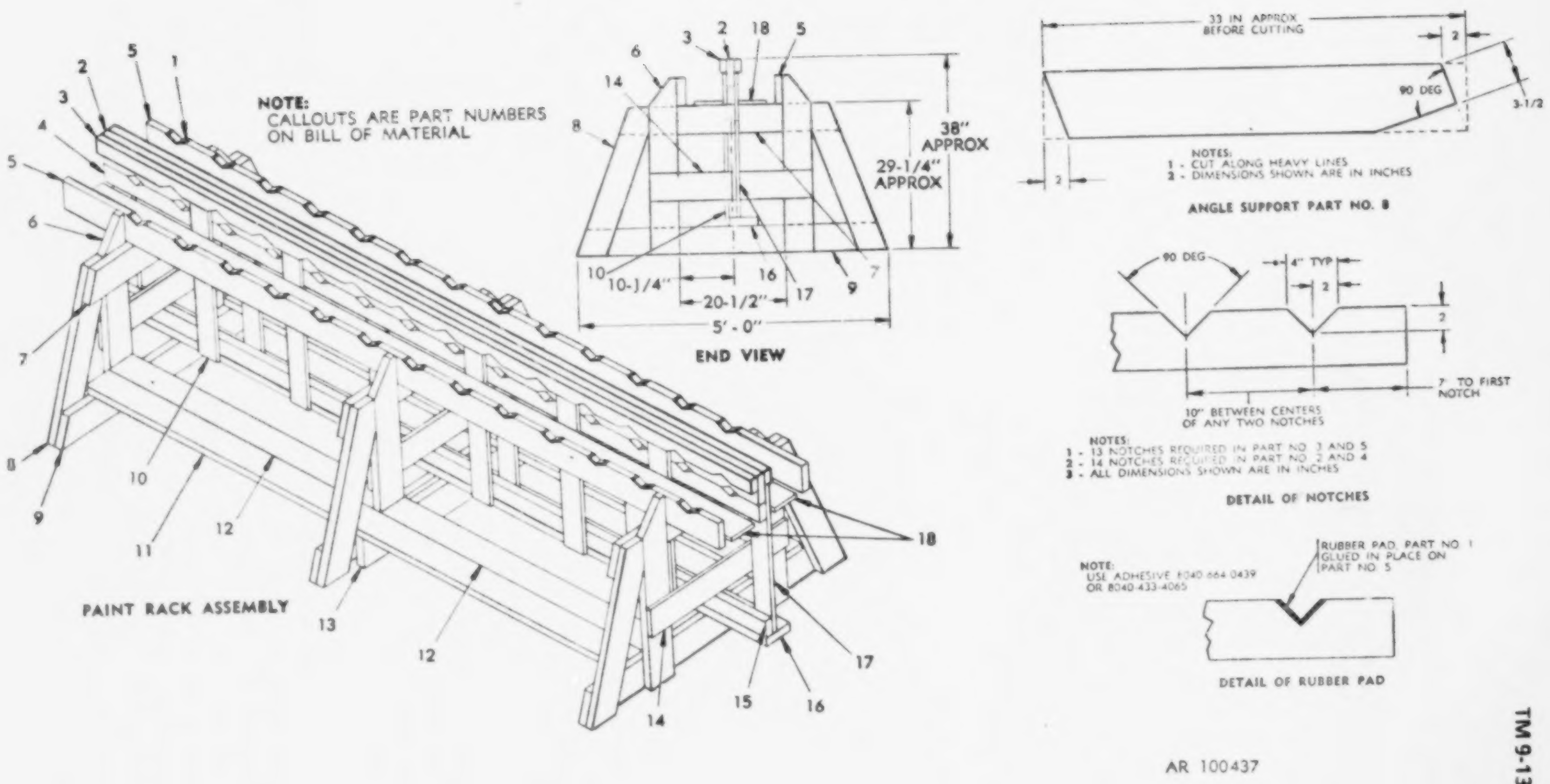

3/4" +1/4" -0"
LIFTING RING - TORQUE WRENCH ADAPTER LOCALLY FABRICATED BY CUTTING 1-1/4", 1/2" DRIVE SOCKET - FSN 5120-189-7917
9/16" CUTOUT
AR 100018

Figure 2-1. Lifting plug—torque wrench adapter.



NOTE:
CALLOUTS ARE PART NUMBERS ON BILL OF MATERIAL

PAINT RACK ASSEMBLY

END VIEW

NOTES:
1 - CUT ALONG HEAVY LINES
2 - DIMENSIONS SHOWN ARE IN INCHES

ANGLE SUPPORT PART NO. 8

NOTES:
1 - 13 NOTCHES REQUIRED IN PART NO 3 AND 5
2 - 14 NOTCHES REQUIRED IN PART NO 2 AND 4
3 - ALL DIMENSIONS SHOWN ARE IN INCHES

DETAIL OF NOTCHES

NOTE:
USE ADHESIVE 8040-664-0439 OR 8040-433-4065

DETAIL OF RUBBER PAD

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
38" APPROX
29-1/4" APPROX
10-1/4"
20-1/2"
5' - 0"
33 IN APPROX BEFORE CUTTING
2
90 DEG
3-1/2
4" TYP
7" TO FIRST NOTCH
10" BETWEEN CENTERS OF ANY TWO NOTCHES
RUBBER PAD, PART NO 1 GLUED IN PLACE ON PART NO 5
AR 100437

Figure 2-2. Improvised painting rack for fixed ammunition.

2-4. Special Handling Equipment for Ammunition

Refer to Appendix E for special handling equipment for ammunition.

CHAPTER 3

INSPECTION REQUIREMENTS

Section I. GENERAL

3-1. Purpose of Inspection

a. Inspection criteria contained in this publication are provided to assure that all maintenance performed will restore the item(s) to an acceptable quality level.

b. A complete plan of all maintenance work is required. Prepare Standing Operating Procedures (SOP) that contain detailed production techniques, standards, and controls necessary to produce a quality product. See TM 9-1300-250 for planning procedures and SOP preparation.

3-2. Ammunition Surveillance Program

Surveillance includes those actions necessary to evaluate the current degree of serviceability of ammunition. See AR 702-6, AR 740-1, AR 702-12 and SB 742-1 for policy, responsibilities and procedures applicable to the Ammunition Surveillance and Quality Evaluation Program.

3-3. Inspections

a. Serviceability.

(1) Ammunition items will be inspected by a Quality Assurance Specialist (Ammunition) or a MOS 055X40 under the guidance of a Quality Assurance Specialist (Ammunition) to determine serviceability or unserviceability according to SB 742-1 and other pertinent SB's.

(2) Required maintenance for unserviceable materiel will be indicated on the inspection report.

b. Pre-Maintenance. At the unpack operation, prior to rework, ammunition items will be screened 100 percent. DS and/or GS personnel will perform screening, which will include the following.

(1) All items with critical non-functional defects will be separated from the quantity to be maintained and disposed of as directed in the SOP.

(2) All items with defects, as listed in table 3-1, will be corrected during maintenance.

(3) Other evidence of poor workmanship or defects that could cause accelerated deterioration or adversely affect the function of the items will be corrected.

c. In-Process.

(1) In-process inspections are an integral part of the maintenance procedures to assure that previous work is adequate and acceptable prior to proceeding with further operations.

(2) Since these inspections are part of the maintenance procedures contained in paragraph 4-1 through 4-19 they will not be specifically covered in this chapter.

d. Final Acceptance.

(1) Ammunition items will be inspected after maintenance has been completed. The final acceptance inspection will determine whether or not maintenance accomplished has returned unserviceable munitions to an acceptable condition.

(2) Quality Assurance Specialist (Ammunition) or MOS 055X40 personnel under the guidance of a Quality Assurance Specialist (Ammunition) will perform this inspection prior to returning the materiel to its storage area.

3-4. Inspection Methods

a. Visual Inspection. Careful observation of item, noting listed defects and any other abnormalities.

b. Manual Inspection. Movement by hand of specified area of item to determine if listed defect(s) exists (e.g., incorrect loose part).

c. Gage Inspection. Checking an item with a measuring instrument or a standard mating piece to determine if its size is acceptable in certain critical areas. Defects are derived from either predetermined standards or on a "go"—"no go" basis (e.g., a ring gage).

3-5. Extent of Inspections

a. Sealed Packages. During serviceability inspections, items packed in barrier bags, jungle wrap, or sealed cans should not be opened for inspection unless sealed package has been opened or there is specific reason to suspect damage. Therefore, sealed packages will usually be subjected only to visual inspection.

b. Processed Items. All processed items will be subjected to in-process inspections and a final acceptance inspection.

c. Protective Lifting Plug. Because of the break away features of the M549/M549A1 Projectile Lifting Plug, special attention must be observed to see if lower portion of the plug is in the Projectile fuze well.

d. Metal Container (Copperhead).

(1) If only the outside of the container is involved (container touchup, painting, marking, or replacement of rope handles is required), the container need not be opened.

(2) In all other cases, the container will be opened and the contents inspected.

Section II. CLASSIFICATION OF MATERIAL DEFECTS

3-6. General

Ammunition and packaging defects are listed in table 3-1. This table also provides the methods of inspection and categories of defects. Categories of defects are defined in SB 742-1. An Acceptable Quality Level (AQL) established for each defect is provided in table 3-1 for evaluation during final acceptance inspection.

3-7. In-Process and Final Inspection

a. All items (ammunition and packing materials) processed will be subject to in-process and final inspection to assure acceptability.

b. In-process and final inspections will be included as an integral part of all maintenance procedures.

3-8. Disposition of Lots

a. Each lot that meets the acceptable quality level (AQL) in table 3-1 is acceptable for issue and use. Critical defective(s) will be removed from otherwise acceptable lots and destroyed.

b. Disposition of mortar ammunition with missing or broken safety pin or clip on fuze is immediate local destruction.

c. Lots found with defects will be inspected 100 percent and reworked within the capability of the unit, as specified in the Maintenance Allocation Chart (MAC). If required maintenance is beyond the capability of the unit, request disposition instructions through ammunition maintenance channels.

d. Any maintenance operation which results in a change to the information on the Lot Ammunition Data Card requires the addition of an alphabetic suffix to the lot number. Lot suffixes for each lot or operation will be obtained through ammunition maintenance channels.

e. Metal container and pallet (Copperhead).

(1) Metal containers will be inspected, touched-up, repainted, and repaired as specified in the Maintenance Allocatioh Chart (MAC), and/or stored for reissue. Pallets will be inspected, repaired if possible) and stored.

(2) If any reparable defects are found in containers beyond those authorized for repair at DS/GS level, forward item to Depot for service.

(3) If any irreparable defects are found in containers, disposal instructions will be requested.

(4) Unserviceable pallets may be locally destroyed.

Table 3-1. Classification of Material Defects

GENERAL PACKAGING

Component	Category	Defect	Method of inspection	Reference	AQL
Outer container	Major	Damaged, weathered, or rotted to extent contents are not protected or container is no longer structurally sound.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Container cap or closure insecure to extent contents are not protected.	Visual/ Manual	TM 9-1300-251-20 chapter 3	0.40
	Major	Contents loose to extent item may be damaged in handling.	Visual/ Manual	TM 9-1300-251-20 chapter3	0.40
	Minor	Hardware or banding loose, missing, broken, or ineffective.	Visual/ Manual	TM 9-1300-251-20 chapter 3	0.65
	Minor	Handle or cleat missing or broken.	Visual	TM 9-1300-251-20 chapter 3	0.65
Inner Container	Major	Damaged to extent contents are not protected or cannot be readily removed.	Visual/ Manual	TM 9-1300-251-20 chapter 3	0.40
	Major	Barrier bag improperly sealed, torn, cut, or otherwise penetrated.	Visual	Refer to chapter IV	0.40
	Minor	Wet (except metal), rusted, moldy, or mildewed.	Visual	TM 9-1300-251-20 chapter 3	0.65
	Minor	Barrier bag edges delaminating but not yet unsealed.	Visual	Refer to chapter IV	0.65
PALLETS, WOODEN BOXES AND CRATES					
Hardware	Minor	Inoperative or loose.	Visual/ Manual	TM 9-1300-251-20 chapter 3	0.65
	Minor	Nails, screws, and fasteners which can be replaced or properly sealed.	Visual	TM 9-1300-251-20 chapter 3	0.65
Ends	Major	Damage which requires disassembly of box.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Minor	Broken or missing cleats and handles.	Visual	TM 9-1300-251-20 chapter 3	0.65
Wood	Major	Splits closer than 1 inch to edge of board or adjoining split or over 1/8 inch wide.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Warping which prevents insertion or removal of rounds and/or sealing of the box.	Visual/ Manual	TM 9-1300-251-20 chapter 3	0.40
	Major	Excessive mildew and mold which cannot be removed and which render markings illegible.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Holes or loose knots which exceed 1 1/2 inches in largest diameter or 1/3 width of board.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Knots greater than 1/4 the width of the skid.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Minor	Splits over 3 inches but no closer than 1 inch to edge of board or adjoining split; or 1/8 inch wide, which can be repaired by use of corrugated fasteners.	Visual	TM 9-1300-251-20 chapter 3	0.65
	Minor	Loose skids.	Visual	TM 9-1300-251-20 chapter 3	0.65
Strapping	Minor	Missing, rusted, or distorted.	Visual	TM 9-1300-251-20 chapter 3	0.65
Wires	Major	Broken or rusted through.	Visual	Refer to chapter IV	0.40
Marking	Major	Incorrect and/or illegible.	Visual	Refer to chapter IV	0.40
Nailing (Pallets only)	Major	Missing or loose nails.	Visual	Refer to chapter IV	0.40

Table 3-1. Classification of Material Defects Continued

FIBER CONTAINERS

Component	Category	Defect	Method of inspection	Reference	AQL
Metal ends	Major	Perforations, excessive rust, or ends which are crushed or not securely crimped to body.	Visual	TM 9-1300-251-20	0.40
Body and cap	Major	Cuts, tears, or gouges closer than 1 inch to closure, more than 1/2 square inch in area, or through all impregnated layers.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Molded, mildewed, or rotted.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Wrinkled or peeling.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Blisters with combined area of more than 1/2 square inch.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Wet or soft containers	Visual/ Manual	TM 9-1300-251-20 chapter 3	0.40
	Minor	Cuts, tears, or gouges not closer than 1 inch to closure, less than 1/2 square inch in area, and unpenetrated layers which can be spot painted.	Visual	Refer to chapter IV	0.65
Marking	Major	Incorrect and/or illegible.	Visual	Refer to chapter IV	0.40

METAL CONTAINERS

Component	Category	Defect	Method of inspection	Reference	AQL
Body	Major	Dents which impair the structural integrity of the material.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Loose or leaking seams.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Rust which has caused pitting and perforations.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Perforated.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Damaged supports which are integral to container.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Minor	Dents deeper than ¼ inch which may be removed without weakening structure of container.	Visual	TM 9-1300-251-20 chapter 3	0.65
	Minor	Minor rust which can be removed.	Visual	Refer to chapter IV	0.65
	Minor	Supports which can be replaced.	Visual	TM 9-1300-251-20 chapter 3	0.65
Caps and Covers	Major	Rust which has caused excessive pitting.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Perforated	Visual	TM 9-1300-251-20 chapter 3	0.40
	Minor	Minor rust which can be removed	Visual	Refer to chapter IV	0.65
Marking	Major	Incorrect and/or illegible	Visual	Refer to chapter IV	0.40

METAL BOXES

Component	Category	Defect	Method of inspection	Reference	AQL
Body and Cover	Major	Extensive pitting and rust.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Split seams.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Major	Dents, which cause creases or folds in metal which cannot be removed.	Visual	TM 9-1300-251-20 chapter 3	0.40

Table 3-1. Classification of Material Defects-Continued

METAL BOXES - Continued

Component	Category	Defect	Method of inspection	Reference	AQL
Body and Cover (Continued)	Major	Perforated.	Visual	TM 9-1340-222-20	0.40
	Major	Missing or broken separators.	Visual	TM 9-1300-251-20 chapter 3	0.40
	Minor	Minor rust which can be removed.	Visual	para 4-6	0.65
	Minor	Dents exceeding 4 square inches per side, end, or top or deeper than ¼ inch.	Visual	TM 9-1300-251-20 chapter 3	0.65
	Minor	Damaged or missing gaskets.	Visual	TM 9-1300-251-20 chapter 3	0.65
Marking	Major	Incorrect and/or illegible	Visual	para 4-20	0.40

FIXED AMMUNITION (120-MM TANK AMMO) – FIXED AMMUNITION (EXCEPT 152-MM)

Component	Category	Defect	Method of inspection	Reference	AQL
Projectile	Critical	Distorted or out-of-round projectile.	Gage	–	1.00
	Critical	Exudation of filler around fuze well.	Visual	–	1.00
	Major	Corrosion in nose fuze well or supplementary charge.	Visual	–	0.40
	Major	Rust or corrosion at bourrelet.*	Visual	–	0.40
	Major	Damaged rotating band.	Visual	–	0.40
Fuze	Major	Corrosion on nose fuze body (See Nose Fuzes for additional defects).	Visual	–	0.40
Cartridge case	Critical	Cracked or split cartridge case.	Visual	–	1.00
	Critical	Liner of 106-mm recoilless rifle cartridge case damaged to extent that propellant can escape.	Visual	–	1.00
	Major	Corrosion on cartridge case and/or primer.	Visual	–	0.40
	Major	Severe cartridge case dents.	Visual	–	0.40
	Major	Liner of 106-mm recoilless rifle cartridge case, damaged but not to the extent that propellant can escape.	Visual	–	0.40
Marking	Major	Incorrect and/or illegible.	Visual	–	0.40

FIXED AMMUNITION (120MM TANK AMMO)

Component	Category	Defect	Method of inspection	Reference	AQL
Projectile HEAT-MP-T and TP-T	Major	Damage preventing chambering	Visual/ Gage	–	1.00
Spike-TP HEAT	Major	a. Missing or damaged spike tip	Visual	–	1.00
	Major	b. Disc around tip missing or damaged	Visual	–	0.40
	Major	c. Flange on spike tip damaged or distorted.	Visual	–	1.00
	Major	d. Stamped arrows missing (Training Ammo).	Visual	–	1.00
Shoulder Switch	Major	Loose, bent, or cocked.	Visual	–	1.00
Copper Band	Major	Missing or damaged.	Visual	–	1.00
Projectile Rubber Seal	Major	Split, torn, or piece missing.	Visual	–	0.40
Projectile APFSDS-T					
Windshield	Major	Bent or tip loose.	Visual	–	1.00
Sabot Segments	Major	Misaligned.	Visual	–	1.00
Forward nylon retaining band	Major	Broken or missing.	Visual	–	1.00
Rear nylon seal	Major	Broken, Gouged, or missing.	Visual	–	1.00
Rubber seal	Major	Split, torn, or piece missing.	Visual	–	1.00
Forward bore riding surface	Major	Gouged or burred.	Visual	–	1.00
Combustible Cartridge Case Projectile/Case Cap Assembly	Minor	Projectile loose (movement relative to case).	Visual/ Manual	–	0.40

Table 3-1. Classification of Material Defects-Continued

FIXED AMMUNITION (120MM TANK AMMO) - Continued

Component	Category	Defect	Method of inspection	Reference	AQL
Combustible Case and Cap	Major	a. Superficial scrapes/marks penetrating outer polyurethane coating but not exposing white case surface.	Visual	–	0.40
	Minor	b. Scrapes/scratches revealing white case material. Surface coating voided in spots revealing white case material.	Visual	–	0.40
	Minor	c. Abrasion damage/peeling causing coating to be voided in one continuous area. White case material seen within this damage area totaling less than 10 percent of area (194cm²/30 in.²).	Visual	–	0.40
	Major	d. Damage as in c above but 10 percent or more of case coating.	Visual	–	1.00
	Major	e. Case broken exposing propellant.	Visual	–	1.00
Case Base and Seal	Major	Pulled away from case or rubber seal torn or separated.	Visual	–	1.00

SEMI-FIXED AMMUNITION (EXCEPT MORTAR)

Component	Category	Defect	Method of inspection	Reference	AQL
Projectile	Critical	Distorted or out-of-round projectile.	Gage	–	1.00
	Critical	Exudation of filler around fuze well.	Visual	–	1.00
	Major	Rust or corrosion at bourrelet.*	Visual	–	0.40
	Major	Corrosion in fuze well or on supplementary charge.	Visual	–	0.40
	Major	Damaged rotating band.	Visual	–	0.40
Fuze	–	(See Nose Fuzes for additional defects)	–	–	–
Propelling Charges	Critical	Wet or discolored propellant bags (See Propelling Charges for additional defects)	Visual	–	1.00
Cartridge Case	Critical	Cracked or split cartridge case.	Visual	–	1.00
	Critical	Rust or corrosion that penetrates base plate	Visual	–	1.00
	Major	Corrosion on cartridge case and/or primer	Visual	–	0.40
	Major	Severe cartridge case dents.	Visual	–	0.40
Marking	Major	Incorrect and/or illegible.	Visual	–	0.40

*See footnote at end of table.

Table 3-1. Classification of Material Defects - Continued

SEMI-FIXED AMMUNITION (MORTAR ONLY)

Component	Category	Defect	Method of inspection	Reference	AQL or 100%
Mortar Cartridge	Critical	Missing or broken safety pin or clip on fuze.	Visual	–	–
Inner pack	Major	Jungle wrap cut, penetrated or otherwise unsealed.	Visual	–	100%
152-MM AMMUNITION					
Projectile	Critical	Distorted or out-of-round projectile.	Gage	–	100%
	Critical	Exudation of filler around fuze well.	Visual	–	100%
	Major	Major rust or corrosion (more than 2 square inches or pits from corrosion) on projectile.	Visual	–	0.40
	Major	Damaged rotating band.	Visual	–	0.40
Fuze	Major	Corrosion on nose fuze body (See Nose Fuze for additional body defects).	Visual	–	0.40
Cartridge Case	Critical	Cartridge case base separated from cartridge case body.	Visual	–	100%
	Critical	Cartridge case separated from projectile (pull back rubber barrier bag to observe junction).	Visual/ Manual	–	100%
	Critical	Loose ignition element.	Visual/ Manual	–	100%
	Major	Cartridge case with open cracks or loosely assembled to projectile.	Visual/ Manual	–	0.40
	Major	Torn or missing rubber barrier bag.	Visual	–	0.40
	Major	Corrosion on ignition element or fuze body.	Visual	–	0.40
SEPARATE-LOADING PROJECTILES (EXCEPT COPPERHEAD)					
Projectile	Critical	Distorted or out-of-round body.	Gage	–	100%
	Critical	Exudation of filler.	Visual	–	100%
	Critical	Rust through projectile base plate.	Visual	–	100%
	Major	Rust or corrosion over bourrelet.*	Visual	–	0.40
	Major	Corrosion in fuze well or on supplementary charge.	Visual	–	0.40
	Major	Damaged rotating band.	Visual	–	0.40
	Major	Damaged obturating band.	Visual	–	0.40
	Major	Smoke Canister Leaking Powder (Practice Projectile only).	Visual	–	0.40
	Critical	Missing rocket motor cap.	Visual	–	100%
	Critical	Damaged or missing obturating band HERA rounds only.	Visual	–	100%
	Critical	Evidence of looseness or excessive gap at threaded joint HERA rounds only.	Visual/ Manual	–	100%
	Critical	Broken lifting plugs-threaded area remains in fuze well of projectile, for M549/M549A1 only.	Visual	–	100%
	Critical	Supplementary charge pad or supplementary charge missing.	Visual	–	100%
	Critical	Liner missing.	Visual	–	100%
PROPELLING CHARGES					
Propelling Charge	Critical	Missing or broken central igniter tube.	Visual	–	100%
	Critical	Blocked central igniter core.	Visual/ Manual	–	100%
	Critical	Missing or off center base igniter pad or missing igniter core.	Visual	–	100%
	Critical	Missing bag, extra bag, or incorrect sequencing of zones.	Visual	–	100%

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*See footnotes at end of this table.

Table 3-1. Classification of Material Defects - Continued

PROPELLING CHARGES-Continued

Component	Category	Defect	Method of inspection	Reference	AQL or 100%
	Critical	Missing or loose lacing jacket.	Visual/ Manual	-	100%
	Minor	Tie straps not tied or loosely tied.	Visual/ Manual	-	0.65
	Major	Missing flash reducer.	Visual	-	0.40
	Major	Bag(s) torn or damaged to extent that black powder or propellant can escape.	Visual	-	0.40
	Major	Deteriorated propellant bag.****	Manual	-	0.40
	Major	Lumpy or caked powder in ignition pad.	Manual	-	0.40
Container	Major	Container damaged to extent that propelling charge cannot be removed.	Manual	-	0.40
	Major	Metal container lid gasket missing, out of place, damaged or deteriorated.	Visual	-	0.40
	Major	Damaged or deteriorated container with penetration.	Visual	-	0.40
		NOSE FUZES			
Nose Fuze	Critical	Missing or broken safety pin or clip (howitzer and mortar fuzes only).	Visual	-	100%
	Critical	Loose nose cap.	Visual	-	100%
	Critical	Missing or broken component.	Visual	-	100%
	Critical	Corrosion on time rings.	Visual	-	100%
	Critical	Severe physical damage.	Visual	-	100%
	Critical	Fuze is suspected of being armed.		-	100%
	Major	Corrosion on fuze body.	Visual	-	0.40
	Major	Loose booster assembly (only for fuzes that are not assembled on rounds).	Manual	-	0.40
		BURSTERS (REPLACEMENT ITEMS ONLY)			
Burster	Critical	Explosive and/or exudation.	Visual	-	100%
	Critical	Missing onion skin seal, felt-pad, base plug, or closure.	Visual	-	100%
	Major	Lack of record indicating recently passed 100 percent X-ray inspection (tetytol).	Visual	-	0.40
	Major	Physically damaged case.	Visual		0.40
		M712 PROJECTILE (COPPERHEAD)			
Projectile	Major	Aft closure damaged to extent that it would prevent engagement of extractor.	Visual	-	100%
	Critical	Evidence of leakage of composition B.	Visual	-	100%
	Major	Loose splice screws. (A screw is considered loose when the screwhead is higher than the area around it.)	Visual	-	100%
	Major	Loose access cover.	Visual	-	100%
	Major	Broken, cracked, or missing projectile ogive.	Visual	-	100%
	Critical	Cracked or deeply gouged obturator.	Visual	-	100%
	Major	Crack or dent in any part of projectile body.	Visual	-	100%
	Major	Wings or fins are loose or broken or not in retracted position.	Visual/ Manual	-	100%
	Major	Water droplets condensed on, or fogging of, interior surface of nose cone.	Visual	-	100%
	Major	Window portion of projectile ogive (nosecone) severely scratched or gouged.	Visual	-	100%

See footnotes at end of this table.

Table 3-1. Classification of Material Defects—Continued

M712 PROJECTILE (COPPERHEAD)—Continued

Component	Category	Defect	Method of inspection	Reference	AQL or 100%
	Major	Dirt, debris, or foreign objects in wing or fin slots.	Visual	—	0.40
	Major	Dials on code/time switches missing, broken, or illegible.	Visual	—	100%
	Major	Code/time switches require excessive torque to rotate or seem unusually loose when rotated.	Visual Manual		100%
	Major	Excessive rust or pitting of bourrelets.	Visual	—	100%
	Major	Switch bracket broken or damaged.	Visual Manual	—	100%
	Minor	Minor abrasions or smudges on window portion of projectile ogive.	Visual	—	0.65
	Minor	Partial obliteration of markings.	Visual	—	0.65
	Minor	Scratches in paint and projectile body.	Visual	—	0.65

M823 PROJECTILE (COPPERHEAD)

Component	Category	Defect	Method of inspection	Reference	AQL or 100%
Projectile	Major	Excessive rust or pitting of bourrelets.	Visual	—	0.40
	Major	Cracked or deeply gouged obturator.	Visual	—	0.40
	Major	Switch bracket broken or damaged.	Visual Manual	—	0.40
	Major	Dials on code/time switches missing, broken or illegible.	Visual	—	0.40
	Major	Code/time switches required excessive torque to rotate or seem unusually loose when rotated.	Visual	—	0.40
	Minor	Water droplets condensed on, or fogging of, interior surface of projectile ogive (nose cone).	Visual	—	0.65
	Minor	Dirt, debris, or foreign objects in wing or fin slots.	Visual	—	0.65
	Minor	Window portion of projectile ogive (nosecone) abraded, smudged, scratched, or gouged.	Visual	—	0.65
	Minor	Partial obliteration of markings.	Visual	—	0.65
	Minor	Scratches in paint and projectile body.	Visual	—	0.65

METAL CONTAINER (COPPERHEAD)

Component	Category	Defect	Method of inspection	Reference	AQL or 100%
Container	Major	Container damaged to extent that it cannot be opened in usual manner.	Visual Manual	**	100%
	Major	40% dot on humidity indicator is not blue.	Visual	***	100%
	Major	Container damaged to extent that projectile damage would be indicated.	Visual	—	100%
	Major	Damaged, leaking or missing gasket.	Visual	***	100%
	Major	Perforated as result of rust or penetration of foreign object.	Visual	—	0.40
	Major	Dents that impair the structural integrity of the container.	Visual	—	0.40
	Major	Loose or broken handles.	Visual	—	0.40
	Major	Stiffening ribs damaged to extent that ability to palletize multiple rounds is impaired.	Visual	—	0.40
	Major	Internal pressure pads missing, damaged, or deteriorated.	Visual	***	0.40
	Major	Cradle pads missing, damaged, or loose.	Visual	—	0.40
	Major	Humidity indicator damaged or loose to extent that it would permit leakage.	Visual	***	0.40
	Minor	Minor rust and paint deterioration.	Visual	—	0.65
	Minor	Partially obliterated markings.	Visual	—	0.65
	Minor	Dents and scratches that do not impair mission of container to protect projectile.	Visual	—	0.65
	Minor	Missing/loose (peel-off) red labels (4)	Visual	-	0.65

See footnotes at end of this table.

Table 3-1. Classification of Material Defects—Continued

METAL CONTAINER (COPPERHEAD)—Continued

Component	Category	Defect	Method of inspection	Reference	AQL
Lifting straps	Major	Rips in straps. Stitching loose or missing.	Visual	—	0.40
Preload Bands	Major	Missing plastic inserts (preload tabs). Damaged latches.	Visual	—	0.40

*The bourrelet is a finely machined band or ring of metal just behind the ogive of a projectile, and designed to support the front portion of the projectile, riding the lands as it travels through the bore of a gun.

**See TM 9-1300-251-20 chapter 3 and figure 3-20.

***Defect does not apply to container when used for M823 training round.

****Yellow discoloration of charge bags is not a defect, as all M188A1 charges containing stabilizer 2NDPA will discolor.

CHAPTER 4

MAINTENANCE PROCEDURES

Section I. INTRODUCTION

4-1. General

a. Direct support (DS) and general support (GS) maintenance operations are restricted to procedures in this manual and in TM 9-1300-251-20, as indicated in the Maintenance Allocation Chart (MAC).

NOTE

This manual does not contain procedures for projectiles filled with lethal agents. Required procedures are contained in Depot Maintenance Work Requirements (DMWR) when authorized.

b. Repair parts, packing materials, and expendable supplies (appendices B and C) required by DS and GS units will be locally stocked. DS and GS units are also responsible for receiving and storing packaging materials salvaged from expended ammunition and for providing technical assistance to operator and organizational units.

c. Before beginning maintenance operations, a line layout and standing operating procedures (SOP) are required. Guidelines for organizing the line and writing the SOP are contained in TM 9-1300-250.

d. In general, maintenance operations include but are not limited to:

(1) Cleaning and preservation of individual items and packaging materials.

(2) Removal of light rust and corrosion.

(3) Repair and replacement of packaging materials.

(4) Painting and marking.

(5) Storage and reissue of Copperhead metal containers and pallets.

(6) Holding of Copperhead M712 projectiles pending disposition instructions.

e. Expendable supplies are listed in appendix C.

4-2. Direct Support Maintenance

a. Direct support maintenance is performed under the following conditions:

(1) Upon receipt of unserviceable ammunition.

(2) When maintenance is authorized to correct deficiencies in suspended ammunition lots.

(3) When operator and/or organizational units request onsite assistance.

(4) When inspection of on-hand-stocks reveals the need.

b. Refer to FM 9-19 for mission and organization.

4-3. General Support Maintenance

General support maintenance is accomplished under the same conditions (but on larger stocks of ammunition) as direct support maintenance. Refer to FM 9-19 for mission and organization.

4-4. Unpacking and Repacking

Step-by-step unpacking and repacking procedures are given in TM 9-1300-251-20.

4-5. Inspection

Pre-maintenance, in process, and final inspection requirements are defined in paragraphs 3-1 through 3-8.

Section II. CLEANING

4-6. General

WARNINGS

Do not use any electrical equipment around ammunition with explosive (e.g., a semifixed cartridge case or a projectile with an open fuzewell) unless it has a National Electrical Code rating of Class I for flammable vapor, Class II for explosive dusts (including ammunition), or is dual rated if both vapor and dusts are present.

All ammunition containing explosives must be grounded when being worked on (see para 4-8).

Assure that deck sander or any other power tool being used for derusting is properly grounded (i.e., plugged into a three-wire socket or the third/wire is securely connected to a good ground (see para 4-8c).

Use only non-sparking wire brushes on

ammunition—even on artillery projectiles with fuzewells sealed with a nose plug.

Do not use wire brushes anywhere near primer on rear of cartridge cases or on fuzes.

WARNING

Acetone is extremely flammable; keep away from heat, sparks, and open flames; keep container closed; use adequate ventilation; and avoid prolonged or repeated contact with the skin. The vapor is heavier than air and may travel considerable distance to a source of ignition and flashback.

Acetone can react vigorously with oxidizing materials.

a. Tools and Equipment.
(1) Disposable flammable waste can.
(2) Non-sparking wire brush.
(3) Plunger type safety can.

b. Expendable Supplies.
(1) Alcohol.
(2) Acetone.
(3) Corrosion removing compound.
(4) Rags.
(5) Sandpaper.

4-7. Procedure

WARNING

Fuze cavity liner must be in place prior to cleaning fuze well or threads with small stainless steel brush, or acetone dampened rags.

CAUTION

Store rags in noncombustible self-closing containers. Place wastes or used rags in water filled containers. Areas will be well ventilated where solvents and paints are used.

a. Remove dirt, mud and other foreign material using rags or scrub brushes. Use rags dampened with alcohol or acetone to remove grease.

NOTE

Acetone can smear the markings, so keep this solvent away from them if possible.

b. Remove nose plug to clean fuzewell area of artillery projectiles.

(1) Assure fuzewell liner is properly and securely in place. If it is loose or missing, just clean the area with *DRY* rags and immediately resecure the nose plug.

(2) If fuzewell liner is properly in place, acetone dampened rags and/or the small stainless steel wire brush may be used to clean the area as necessary.

c. Resecure nose plug (para 4-12) before undertaking derusting.

(1) Ground ammunition item to be derusted (para 4-8).

(2) Remove flaked, chipped, blistered or peeling paint and light corrosion (rust) from metal surfaces of ammunition using sandpaper, rags, and corrosion removing compound or hand nonsparking wire brushes as necessary. Do not use wire brushes anywhere near primer on rear of cartridge cases or on fuzes.

(3) Properly grounded powered deck sander with nonsparking wire brush or sanding disc may be used on artillery projectiles whose fuzewells are securely sealed with a nose plug. In the case of semi-fixed ammunition the cartridge cases must be removed from the area during this operation because the currently provided deck sander is not explosion proof and must never be used around exposed explosives. Do not use this device on primed cartridge cases (including those on fixed ammunition). Be careful not to use disc sander on the projectile rotating band.

(4) Clean corrosion from aluminum or copper-based metals by first brushing with a nonsparking wire brush and then removing residue with rags and corrosion removing compound.

(5) Clean only to degree necessary to remove bad paint, rust or, corrosion. Wipe all derusted surfaces with alcohol dampened rag to remove all residue of the operation.

(6) Inspect cleaned item for cracks or other damage or deterioration.

(7) Allow solvent-cleaned surfaces to dry thoroughly before painting, (see para 4-16).

d. M712 and M823 projectiles (Copperhead) — refer to TM 9-1300-251-20 for step-by-step cleaning procedures. Observe all cautions.

e. Metal Container (Copperhead) — refer to TM 9-1300-251-20 for step-by-step cleaning procedures.

4-8. Grounding of Ammunition

a. General. Properly ground all ammunition containing explosives when performing any contact type operations (derusting, paint removal, cleaning, etc). Ground ammunition by making a low resistance electrical connection between the item and a metal object known to be grounded. Grounding system must be approved by the local safety officer.

b. Expendable Supplies.
(1) Abrasive paper (sandpaper).
(2) Copper wire No. 10.
(3) Ground rods.
(4) Electrical clip.

c. Procedure. The general procedure for grounding ammunition is as follows:

(1) Locate an approved grounded metal object such as a cold water pipe or metal underground telephone line conduit within 25 feet of the work area.

(2) Clean a small section of the grounded object's surface with sandpaper in order to obtain a good contact.

(3) If a suitable grounded metal object is not available, hammer a grounding rod into the earth within 25 feet of the work area.

(4) Cut the required length of No. 10 wire to reach between the item and the grounded object.

(5) Strip 1 inch of insulation from each end of the wire.

(6) Attach an electrical clip to each end of wire.

(7) Clamp one electrical clip to the cleaned grounded object's surface or attach one of the bared ends of wire to the grounding rod clamps.

NOTE

For a more permanent installation, strip enough insulation from wire so that the bared end can be wrapped around the cleaned grounded object's surface at least two and a half times. Secure wire with a hose clamp.

(8) Carefully attach the other electrical clip to the rotating band of most artillery items. On unfuzed items, where it is impossible or difficult to attach the electrical clip to the rotating band, sand the paint off the ring of a spare lifting plug. Remove original lifting or closing plug and temporarily install sanded lifting plug. Attach electrical clip to the sanded lifting plug ring.

WARNING

DO NOT REMOVE LIFTING OR CLOSING PLUG AND ATTACH ELECTRICAL CLIP TO THE NOSE AND EXPOSED FUSEWELL OF THE ITEM.

(9) Reinstall serviceable lifting or closing plug according to para 4-12.

Section III. REPAIR

4-9. Packaging Materials

a. General. Detailed procedures for authorized repair of most packaging materials are given in TM 9-1300-251-20. Procedures authorized at DS or GS level are stated below.

b. Wirebound Box Loops (DS and GS levels).

(1) Tools and equipment.

(a) Tin snips.

(b) Pliers.

(c) Hammer.

(d) Salee fastener.

(2) *Expendable supplies.* Wire.

(3) *Procedure.* A broken wire loop on a wirebound box may be repaired if both legs of broken loop are securely fastened to box.

(a) Cut off broken loop even with top edge of box.

(b) Using pliers, bend remaining wire legs back one-half inch, forming half circles.

(c) Cut a 6-inch length of wire to replace a broken loop.

(d) Bend repair wire in half to form U shape. Then bend about one-half inch of each leg outward about 150°.

(e) Hook bent legs of repair wire into half circles of box wires.

(f) Twist ends of repair wire around ends of box wires.

(g) Place box panel on hard surface or place a steel bar under repair area.

(h) Secure the repair by hammering the twisted wires together against the box panel.

c. Resealing or Replacement of Barrier Bags (GS Level).

(1) *Tools and equipment.*

(a) Scissors or knife.

(b) Heat sealer.

(2) *Expendable supplies.*

(a) Barrier material.

(b) Tape, PPP-T-60.

(3) *Procedure.* This procedure is basically a repacking procedure but is listed here because it will normally be undertaken on a repair basis. Only items that have been completely inspected and found satisfactory will be resealed.

(a) Receive bag from unpacking operation. Trim open end straight if necessary.

(b) Examine barrier bag and accept or reject as required. Acceptable bags are intact (except for opening slit) and can be resealed after contents are reinserted. If bag corners are delaminated but bag is otherwise intact and can be sealed, use heat sealing machine to relaminate corners. Set rejects side for later disposal.

(c) If markings are obliterated on otherwise undamaged bags, remark as instructed in paragraph 4-18.

(d) If new bags are required:

1. Cut two sheets of barrier material for each bag to dimensions of original bag.

2. Place two cut sheets of barrier material together, plastic facing plastic, and aline.

3. Seal three edges, using heat sealing machine. Leave wider edge open if bag is not square.

(e) Assure that item to be repacked and packing materials are clean and dry.

(f) Place item(s) into original inner pack in original manner using all padding materials. Use extra padding materials to fill voids and to prevent item from moving. Tape inner pack to secure it if necessary.

(g) Place inner pack in barrier bag in original orientation using creases etc., as a guide.

(h) Leaving open end free, flatten bag around inner pack and press sides of open end of bag together to force out excess air.

(i) Seal open end of bag, using heat sealing machine. Seal fully width of sealing bar. Seal shall be minimum 1/2-inch wide. Check to see that seal is complete.

(j) Fold sealed end in original manner (indicated by impressions in bag).

d. Metal Container (Copperhead).

(1) Replacement of rope handles. Follow procedures in TM 9-1300-251-20.

(2) Replacement of humidity indicator card. Check humidity indicator. If 40 percent humidity dot on indicator card is not blue, change desiccant and card as follows:

(.0*a*) Open container, remove desiccant, replace with fresh desiccant, and close container. Follow procedures in TM 9-1300-251-20.

(a) Using 1-3/8-inch socket and ratchet handle with 3/4-inch square male drive, or slip-joint pliers NSN 5120-00-278-0352, unscrew humidity indicator from the container, turning counterclockwise.

(b) Use 1/2-inch socket screw key (Allen wrench) to unscrew plug from inside of humidity indicator, turning counterclockwise.

(c) Remove gasket from inside of humidity indicator.

(d) Remove used indicator card. Insert new indicator card.

(e) Reinstall gasket inside humidity indicator.

NOTE

If gasket is not reusable, return container, with projectile, to Depot for replacement.

(f) Reinstall plug on inside of humidity indicator using a 1/2-inch socket head key. Turn key clockwise until handtight.

(g) Reinstall humidity indicator into threaded hole in the container, using ratchet handle with 3/4-inch square male drive and 1-3/8-inch socket or slip-joint pliers. Tighten by turning clockwise until handtight.

(h) After a 48-hour period, observe humidity indicator card. If the 40 percent humidity dot is not blue, open container, change card and desiccant again, then close container. If after a second 48-hour period the dot is not blue, take the projectile out, put the projectile in a different container, and remark the container. Tools used in replacement of humidity indicator card are key, socket headscrew (1/2-inch) NSN 5120-00-198-5407, and socket, socket wrench 1-3/8-inch, 3/4-inch square male drive, NSN 5120-00-189-7930 and handle, socket wrench, reversible ratchet, 3/4-inch square drive, NSN 5120-00-198-5407 or slip-joint pliers NSN 5120-00-278-0352.

e. Pallets for Projectiles.

(1) Replace missing nails and remove and replace bent nails. Firmly hammer in any loose nails.

WARNING

Pallets marked with letter "P" have been treated with pentachlorophenol (PENTA) and must not be burned.

(2) Broken pallets or pallets with defective board will be sent to the Property Disposal Office.

4-10. Propelling Charges

a. General. The only repair authorized for propelling charges at DS and GS levels is retieing charges for separate loading projectiles should they come loose due to handling, etc. See appropriate procedure for retieing individual separate loading charges below.

b. 8-inch and 155-mm Charges (DS and GS levels).

NOTE

See paragraph 4-9*b*(3) for special procedure for propelling charges M86 and M86A1 for 175-mm projectiles.

(1) Visually inspect propellant containers for dents, punctures, etc.

(2) Open all containers showing evidence of punctures, severe dents or other penetrating damage or which contain charges known to need retieing.

(3) Remove propelling charge bags.

(4) Inspect propelling charge bags for defects listed in table 3-1. To inspect for bag deterioration, proceed as follows:

(a) Visually inspect bag surface for deterioration of silk celcon cloth. Deterioration will usually be accompanied by discoloration (indicated below) with loss of tensile strength in cloth.

1. Brown spots on white silk bags.

2. Orange spots on green silk bags.

3. Blue spots in white cotton or rayon blend bags. However, discolorations do not always indicate deterioration of cloth. Yellow discoloration of charge bags is not a defect as all M188A1 charges containing stabilizer 2NDPA will discolor. The amount of stabilizer leeching to discolor the cloth is not an indication of stabilizer unserviceability, as the amount needed to discolor is insignificant with respect to loss of stabilizer content.

(b) Check suspect areas by poking them with index finger. Cloth on badly deteriorated bags should tear or desintegrate with little or no effort.

(c) If bag proves to be defective, dispose of bag and propellant as directed by local commander.

(d) If cloth withstands these tests, it is acceptable.

(5) If charge has separated into increments, it may be retied as follows:

(a) Assemble increments in correct numerical order with flash reducer at forward end.

(b) Tie straps tightly using two overlapping square knots on top of the charge.

(6) Obtain a good identical type container and repack acceptable propellant in the original manner.

(7) Make sure markings are correct on new container.

c. 175-mm Charges (DS and GS Levels).

(1) *Expendable supplies.* Acrylic or silk lacing cord may be required.

(2) *Procedure.* If charge has separated into increments, it may be retied as follows:

(a) Assemble bell ends of igniter tubes from increments No. 1 and 3 fully over ends of igniter tube of increment No. 2 with no separation between increment loading assemblies.

(b) Secure tying straps tightly around top of increment No. 3 using two overlapping square knots.

(c) Tie lacing cord around assembled charge at junction of increments No. 2 and No. 3.

(d) After assembly, igniter tube should not protrude beyond end of increment No. 3.

(3) *Inspect propelling charges M86 and M86A1.* This inspection procedure is only for the propelling charges M86 and M86A1, and does not apply for the M86A2.

(a) Carefully inspect visually charge containers for dents, punctures, etc.

(b) Open all containers showing evidence of punctures, severe dents or other penetrating damage.

(c) Move tie strap to one side, and inspect igniter core assembly in increment No. 3 for evidence of loose black powder granules and collapsed, broken or missing tube.

(d) Remove propelling charge from container. Remove igniter protector cap and inspect igniter pad, core, and tube in increment No. 1 for evidence of loose black powder granules, improperly positioned components, missing components, collapsed igniter tube, loose pieces of igniter tube, or protruding igniter core. (This inspection shall be done visually and by finger manipulation.)

(e) Examine igniter protector cap for evidence of loose black powder granules. Examine charge for other defects listed in table 3-2.

(f) Obtain or fabricate a nonsparking rod (wood, brass, etc.) at least 50 inches long of 1/4 inch or less diameter. Round one end of rod with sandpaper or grinder.

CAUTION

> When inserting rod into igniter tube do not try to force rod. Exercise care in preventing damage to igniter pad.

(g) Insert rounded end of rod into igniter tube in increment No. 3.

(h) Depressing along inner wall, push rod slowly and carefully through all three igniter tubes until it comes in contact with igniter pad. Be careful not to puncture pad.

(i) If resistance is encountered prior to contact with the igniter pad, replace charge in container and return to depot.

(j) If rod reaches igniter pad, carefully remove rod and consider charge acceptable from this standpoint.

(k) Obtain a good identical type container and repack acceptable propellant in the original manner.

(l) Reseal container and make sure markings are correct on new container.

Section IV. REPLACEMENT OF ARTILLERY AMMUNITION COMPONENTS

4-11. General

Replacement ammunition will be installed following procedures in TM 9-1300-251-20. Serviceable ammunition components will be reinstalled and unserviceable components will be replaced by new ones in accordance with procedures given below.

4-12. Nose Fuzes, Closing Plugs, and Eyebolt Lifting Plugs

a. General. Nose fuzes, closing plugs, and eyebolt lifting plugs which require replacement will be removed and new ones installed using procedures in TM 9-1300-251-20, or procedures below.

NOTE

> Eyebolt lifting plugs and closing plugs may be obtained by cannibalization.

The M549/M549A1 Protective Lifting Plug is not interchangeable with any other lifting plug.

b. Tools and Equipment.

(1) Pipe vise.
(2) Brush, nonsparking stainless steel (small).
(3) File, fine.
(4) Adapter, fuze to torque wrench.
(5) Adapter, lifting ring to torque wrench (locally fabricated).
(6) Torque wrench, 1/2-inch drive (600 inch-pounds).
(7) Can, disposable flammable waste.
(8) Safety can, plunger type.
(9) Fuze wrench.

c. Expendable Supplies.

(1) Sheet rubber.
(2) Acetone.
(3) Pettman cement.
(4) Grease.

d. Procedures.

(1) If working on fixed rounds, position an improvised support near pipe vise to cradle cartridge case base.

(2) Place projectile (protected by sheet-rubber padding) in pipe vise.

CAUTION

> Do not distort projectile diameter by over-tightening vise.

Close vise jaws slowly until projectile is held firmly.

(3) Plaze fuze wrench over fuze and engage wrench flats in fuze slots or insert straight bar through eyebolt lifting plug.

(4) Turn wrench/bar counterclockwise to loosen fuze or plug.

(5) Remove wrench/bar, unscrew fuze or plug by hand, and remove.

(6) Package or destroy unserviceable fuze as directed by local commander.

(7) Inspect fuze well as required (see para 3-1 through 3-8), and clean with dry rag if necessary. Use acetone dampened rag for removal of any explosive contamination.

(8) Clean threads with nonsparking small stainless steel brush if necessary.

(9) Use a fine file to remove any edges around previously staked areas or nose of projectile.

(10) Apply Pettman cement to new fuze threads or lubricate plug threads with grease.

NOTE

> Before replacing lifting plug, check for presence and condition of lifting plug gasket. If necessary replace it.

(11) Carefully thread new fuze or plug clockwise into projectile fuze well. Screw down by hand as far as possible.

(12) Place appropriate torque wrench adapter over fuze or eyebolt of lifting plug.

(13) Insert torque wrench drive shaft into adapter and tighten by applying torquing in a clockwise direction to the following specifications:

(*a*) Torque fuzes to 150 to 300 inch-pounds.

(*b*) Torque lifting plugs to 100 to 200 inch-pounds.

NOTE

Hand tighten aluminum closing plugs. Do not torque them down.

(14) Remove torque wrench.

(15) Loosen vise jaws.

(16) Remove projectile.

4-13. Propelling Charges

a. General. Propelling charges may be installed in semifixed rounds only, using pre-assembled bagged charges such as 105-mm howitzer ammunition as follows:

b. Procedures.

(1) Using padding on fiber container end cap to protect primer, place cartridge base down on bench.

(2) Remove filler cup from mouth of cartridge case.

(3) Remove charge beginning with increment (bag) No. 7 and pull each increment out in order. Assure that all propellant grains are removed.

(14) Package or destroy old propelling charge as directed by local commander.

(5) Inspect cartridge case as required (see para 3-1 through 3-8).

(6) Select appropriate suffix as directed in TM 9-1300-250.

(7) Mark lot number with appropriate suffix on cartridge case, projectile, and packaging using stencil or rubber type kit (para 4-19).

(8) Place replacement propelling charge on bench.

(9) Without cutting string, place each bag in sequence (beginning with increment No. 1) in cartridge case, shaping bag to fit around primer flash tube. Foil side of bag, increment No. 5, must face towards primer.

(10) Replace filler cup in mouth of cartridge case.

(11) Reassemble other components of complete round.

4-14. Supplementary Charges

a. Tools and Equipment.

(1) Brush, stainless steel (small).

(2) Stencil kit; rubber type set.

b. Expendable Supplies. Dry rags, stencil ink or paint.

c. Procedures.

(1) Remove fuze or plug and spacer (para 4-12*d*).

(2) Grasp loop and pull out supplementary charge.

(3) Dispose of as directed by local commander.

(4) Inspect fuze well as required (see para 3-1 through 3-8) and clean with dry rags, as necessary.

(5) Clean threads with nonsparking stainless steel brush if necessary.

(6) Insert new supplementary charge in fuze well, felt pad first.

(7) Reinstall spacer tube.

(8) Reinstall fuze or plug (para 4-12*d*).

(9) Select appropriate suffix as directed in TM 9-1300-250.

(10) Add appropriate suffix to lot number on projectile, cartridge case, and packaging (para 4-19).

NOTE

At present it is expected that DS personnel will not have facilities available for complete repainting of artillery projectiles and will generally be limited to a touch-up operation. For this reason the ring gages necessary to check the complete repaint have only been authorized for GS at present.

4-15. Bursters (GS Level Only).

a. General. Bursters will normally be replaced at GS level only on direction from higher authority.

b. Tools and Equipment.

(1) Drum, 55-gallon.

(2) Flashlight.

(3) Adapter, fuze to torque wrench.

(4) Adapter, lifting ring to torque wrench (locally fabricated).

(5) Torque wrench, 1/2-inch drive (600 inch-pounds).

(6) Can, disposable, flammable waste.

(7) Safety can, plunger type.

(8) Pipe vise.

c. Expendable Supplies.

(1) Wooden dowel.

(2) Acetone.

(3) Sheet rubber padding.

(4) Pettman cement.

d. Procedures.

(1) Position a 55-gallon drum almost full of water next to work area.

(2) If working on fixed rounds, position wooden block(s) under base of cartridge case for support.

(3) Place projectile (protected by sheet-rubber padding) in pipe vise.

CAUTION

> Do not distort projectile diameter by overtightening vise.

Close vise jaws slowly until projectile is held firmly.

(4) Attach appropriate torque wrench adapter to torque wrench and postition adapter over fuze or lifting plug.

(5) Turn torque wrench counterclockwise to loose fuze or plug while watching indicator.

CAUTION

> Do not apply more than 300 inch-pounds or less, set aside for later dispositions as follows:

(a) If five or less such rejects are accumulated from a lot, destroy them as directed by local commander.

(b) If six or more of these rejects are accumulated, request disposition instructions through ammunition maintenance channels.

(6) Once fuze or plug is loosened and can be finger-turned, loosen pipe vise and carefully remove projectile.

WARNING

> If at any time during replacemnt of bursters, smoke or heat is observed escaping from the fuze well, immediately immerse projectile in a drum of water. Destroy projectile in accordance with local regulations.

(7) Hand twist fuze or plug out of projectile. Set fuze aside in a secure and safe position.

(8) On 105-mm projectiles use fingers to twist out small metal cup at base of fuze well.

(9) Keeping hand in fuze well, tilt projectile nose downward until burster slides out of casing at base of fuze will.

(10) Grasp burster and remove it completely.

(11) Repack for disposal as required by the SOP.

(12) Hold projectile nose downward and shake to remove any loose dirt or explosive chips in burster casing.

(13) Use explosion proof flashlight to inspect burster casing.

(14) Use a wooden dowel or stick and an acetone dampened rag to remove any explosive contamination found.

(15) Inspect new burster as required (see para 3-1 through 3-8).

(16) Insert acceptable burster, with felt pad end first or in orientation indicated on burster, in burster casing.

(17) Apply Pettman cement to lower four projectile nose threads of 105-mm projectiles only.

(18) Screw metal cup into base of fuze will on 105-mm projectiles.

(19) Screw on original nose fuze or lifting plug as far as it will go by hand.

(20) Secure projectile in rubber padded jaws of pipe vise according to (3) above.

(21) Using torque wrench and appropriate adaptor, tighten fuze or lifting plug to the following specifications:

(a) Torque fuzes to 150 to 300 inch-pounds.

(b) Torque lifting plugs to 100 to 200 inch-pounds.

(22) Select appropriate suffix as directed in TM 9-1300-250.

(23) Add appropriate suffix to projectile lot number wherever it appears (para 4-19).

(24) If tetrytol bursters of 105-mm projectiles M60 are replaced with composition B bursters, add appropriate suffix to M60 designation wherever it appears.

(a) Use F1 suffix with burster XM53.

(b) Use A1 suffix with bursters M53A1.

Section V. TOUCHUP, PAINTING, AND MARKING

4-16. Touchup

a. General. For general touchup operations use the following procedure. However, see *b* below for special procedure for cartridge cases. See paragraph 4-16c for touchup of Copperhead projectiles and metal containers.

(1) *Tools and equipment.*

(a) Brush, paint.

(b) Spray gun.

(c) Small brush.

(d) Stencil kit; rubber type set.

(e) Can, disposable flammable waste.

(f) Safety can, plunger type.

(g) Respirator.

(2) *Expendable supplies.*

(a) Masking tape.

(b) Abrasive paper.

(c) Primer, zinc chromate.

(d) Paint, ammunition.

(d) Ink, marking stencil.

(f) Alcohol, denatured.

(3) *Procedure.*

(a) Clean item according to section II.

(b) Buff cleaned bare metal area(s) and surrounding paint lightly with fine sandpaper.

(c) Cover rotating band, legible markings,

and threaded surfaces with masking tape.

(d) Wipe off surface of projectile with clean rag dampened with alcohol to remove all loosened paint particles.

CAUTION

Wear respirator during spray paint operations.

(e) Using spray gun, spray can or brush, cover bare metal with thin coat of zinc chromate primer and allow to dry.

(f) Using spray can, spray gun, or brush, paint primed area with two thin coats of proper color paint according to TM 9-1300-251-20. Allow first coat to dry thoroughly before applying second.

(g) After paint has dried, remove masking tape.

(h) Touchup markings using small paint brush or re-stencil, as required (para 4-19).

b. Cartridge Cases.

WARNING

Remove propellant charge from cartridge case and place in a collection container prior to commencing procedures outlined below.

(1) *Tools and equipment.*

(a) Scissors.
(b) Small brush.
(c) Can, disposable flammable waste.
(d) Safety can, plunger type.

(2) *Expendable supplies.*

(a) Masking tape.
(b) Steel wool.
(c) Varnish, ammunition.

(3) *Procedure.*

(a) Protect primer from accidental impact by cutting out a piece of cardboard slightly larger than primer's exposed surface and securing it over primer with masking tape.

(b) Use steel wool to remove rust spots and smooth out scratches in varnish surface.

(c) Feather edges of cleaned areas with adjacent surfaces.

(d) Touchup all cleaned areas with ammunition varnish using a clean small brush.

(e) Allow surface to dry until surface is no longer tacky.

(f) Inspect and touchup or replace markings (para 4-19).

(g) Inspect and reinstall propellant charge in accordance with paragraph 4-13.

(h) Remove masking tape and primer protector.

c. M712 and M823 Projectiles and Metal Containers. Refer to TM 9-1300-251-20 for touchup procedures.

4-17. Painting

a. General.

(1) Ammunition and ammunition components which have been cleaned extensively or to degree that large areas of metal surface are bare will be repainted in accordance with procedures below.

(2) Temperature of both paint and ammunition must be between +50 °F and +100 °F for paint to adhere and dry properly. Also, surrounding temperature must be above +50 °F.

(3) M712 and M823 projectiles and metal containers. Large areas will be painted in accordance with procedures in paragraph 4-16c for touchup.

b. Separate Loaded Projectiles.

(1) *Tools and equipment.*

(a) Ring gage.
(b) Wire brushes.
(c) Adapter, fuze to torque wrench.
(d) Adapter, lifting ring to torque wrench (locally fabricated).
(e) Torque wrench, 1/2-inch drive (600 inch-pounds).
(f) Respirator.
(g) Paint sprayer.
(h) Can, disposable flammable waste.
(i) Safety can, plunger type.

(2) *Expendable supplies*

(a) Rag.
(b) Alcohol.
(c) Primer, zinc chromate.
(d) Paint, ammunition.

(3) *Procedure* (See (4) below for alternate procedure).

(a) Clean projectiles thoroughly (section II).

(b) Sort out projectiles that do not require repainting and those with major damage to rotating band or otherwise unserviceable. Dispose of unserviceable projectiles per SOP.

(c) Remove as much of the paint as possible with cleaning materials furnished. Completely strip paint off bourrelet.

(d) Wipe off surface of projectile with clean rag dampened with alcohol to remove all loosened paint particles.

(e) After cleaning, check diameter of projectile with ring gage. Projectiles which do not pass ring-gage test by reasons other than painted surfaces, will be classified as unserviceable and reported on DA Form 2415 in accordance with TM 38-750.

(f) If missing or not tightened down, use a torque wrench and adapter socket to install lifting plug (with gasket) in fuze well with an assembly torque of 100 to 200 inch-pounds.

(g) If possible, obtain a rack or fixture approved for supporting the total weight of several projectiles suspended from it by their lifting plugs.

NOTE

If no approved fixture is available use alternate procedure contained in (4) below.

(h) Suspend projectiles by lifting rings high enough off ground to give complete access for painting.

(i) Cover rotating band completely with masking tape.

CAUTION

Wear respirator during spray paint operations.

(j) Spot prime any bare metal with a thin coat of zinc chromate primer. Do not prime over good paint but apply over the feathered edge of the spot. Assure that all bare metal is primed.

(k) Air-dry 30 to 60 minutes, or until surface is no longer tacky.

NOTE

A longer drying time may be required at lower temperatures and/or high humidity.

(l) Spray paint projectile with a thin coat of appropriate body color according to TM 9-1300-251-20. Assure that coverage is complete.

(m) Air-dry until surface is no longer tacky.

(n) Inspect to assure that paint covers projectile completely, including old unwanted markings.

(o) Remove masking tape.

(p) Remove projectile from suspension fixture and painting area. Set it, base down, on a clean piece of cardboard or a couple layers of newspaper to thoroughly dry (overnight or longer).

(q) Check bourrelet diameter with appropriate ring gage as detailed in para 3-1 through 3-8. If projectile fails ring-gage test, strip off paint and repaint.

(r) Remark/re-stencil as required.

(4) *Alternate procedure.*

(a) Prepare projectiles for painting as instructed in steps *(a)* through *(f)* in (3) above.

(b) Place projectiles, base down, on floor.

(c) Paint and then air-dry entire exposed surface as detailed in steps *(i)* through *(o)* in (3) above.

(d) When dry, carefully lay projectiles on their sides, supported by boards or other suitable material.

(e) Paint and then air-dry entire base area as detailed in steps *(i)* through *(o)* in (3) above.

(f) After projectile is thoroughly dry, remove masking tape and check bourrelet diameter with appropriate ring gage as detailed in paragraphs 3-1 through 3-8. If projectile fails ring-gage test, strip off paint and re-paint.

(g) Remark/re-stencil as required.

c. *Semifixed Projectiles.* Remove semifixed projectiles from cartridge cases and paint projectiles as instructed in *b* above. Complete repaint of cartridge cases for semifixed projectiles is not authorized. See paragraph 4-16*b* for special touch up procedure of cartridge cases.

d. *Fixed Rounds.*

(1) *Tools and equipment.*

(a) Scissors.

(b) Ring gage.

(c) Respirator.

(d) Paint sprayer.

(e) Can, disposable flammable waste.

(f) Safety can, plunger type.

(g) Paint rack (locally fabricated).

(2) *Expendable supplies.*

(a) Rags.

(b) Masking tape (2 inches).

(c) Kraft paper.

(d) Primer, zinc chromate.

(e) Paint, ammunition.

(3) *Procedure.*

(a) Clean rounds thoroughly (section II).

(b) Sort out only rounds requiring repainting.

(c) Protect primer from accidental impact by using the end cap and primer protection pad of the fiber containers in which the round is stored and shipped.

(d) Remove as much of the paint as possible with materials furnished. Completely strip paint off bourrelet.

(e) Wipe off surface of component with clean rag dampened with alcohol to remove all loosened paint particles.

(f) After cleaning, check diameter of projectile with ring gage. Destroy rounds which do not pass ring-gage test in accordance with local regulations.

(g) Place round in rack (para 2-1 through 2-3) so that component (either projectile or cartridge case) to be painted extends beyond and does not contact rack.

(h) When painting one component (projectile or cartridge case), cover other component using masking tape and kraft paper.

(i) Protect primer from accidental impact by using the end cap and primer protection pad of the fiber containers in which the round is stored

and shipped.

(j) Cover rotating band completely with masking tape.

CAUTION

Wear respirator during spray paint operations.

(k) Spot prime any bare metal on component with a thin, sprayed coat of zinc chromate primer. Do not prime over good paint, but do not worry about over spray from spot priming. Assure that all bare metal is primed.

(l) Air-dry 30 to 60 minutes, or until surface is no longer tacky.

NOTE

A longer drying time may be required at lower temperatures and/or high humidity.

(m) Spray paint component with a thin coat of appropriate body color, according to TM 9-1300-251-20. Assure that coverage is complete.

(n) When thoroughly dry, remove masking tape and kraft paper. Check bourrelet diameter with appropriate ring gage.

e. Hardware (Metal Grommets, Lifting Plugs, etc.)

(1) *Tools and equipment.*

(a) Respirator.

(b) Paint sprayer.

(c) Can, disposable flammable waste.

(d) Safety can, plunger type.

(2) *Expendable supplies.*

(a) Masking tape.

(b) Primer zinc chromate.

(c) Paint, ammunition.

(3) *Procedure.*

(a) Clean item in accordance with instructions in section II.

(b) Cover threads and other areas which do not require painting with masking tape.

(c) Suspend item from wire hook.

CAUTION

Wear respirator during spray paint operations.

(d) Spray bare metal with a thin coat of zinc chromate primer.

(e) Air-dry until surface is no longer tacky.

(f) Inspect item to assure that there are no bare areas. Re-prime bare areas, as required.

(g) Spray item with a thin coat of paint in the appropriate color, according to TM 9-1300-251-20.

(h) Air-dry until surface is no longer tacky.

(i) Inspect to assure complete paint coverage. re-paint spots as necessary.

(j) Remove masking tape.

f. Wood Packing Box. The normal reason for painting wooden boxes will be obliteration of old markings.

(1) *Tools and equipment.*

(a) Paint sprayer.

(b) Can, disposable flammable waste.

(c) Safety can, plunger type.

(2) *Expendable supplies.*

(a) Masking tape.

(b) Paint, ammunition.

(c) Lacquer, obliterating.

(3) *Procedure.*

(a) Assure that box is clean and dry.

(b) Cover valid markings, if legible, with masking tape.

CAUTION

Wear respirator during spray paint operations.

(c) Spray with olive-drab enamel or marking obliterating lacquer as required to obliterate unwanted markings.

(d) Air-dry until surface is no longer tacky.

(e) Inspect to assure complete coverage. Repaint spots if necessary.

(f) Remove masking tape.

(g) Mark as required, in accordance with instructions in paragraph 4-19.

g. Metal Packing Box or Tubular Container.

(1) Clean containers in accordance with section II.

(2) Paint containers using the preceeding procedures:

(a) Small items may be suspended to allow complete coverage (*e* above).

(b) Large items may require two separate sprayings (one for sides and top, and one for base) to completely cover surface (alternate procedure, *b*-4 above).

h. Fiber Tube Container.

(1) *Tools and equipment.*

(a) Paint brush.

(b) Paint sprayer.

(c) Can, disposable flammable waste.

(d) Safety can plunger type.

(e) Respirator.

(2) *Expendable supplies.*

(a) Rags.

(b) Kraft paper.

(c) Masking tape.

(d) Coating Compound, bituminous.

(e) Paint (black), ammunition.

(f) Primer, zinc chromate.

(g) Coating compound.

(3) *Procedure.*

(a) Clean container and cap (section II).

(b) After cleaning, inspect and reject components with penetrating damage or rust which cannot be removed.

(c) Cover metal ends and unpainted inner tube with paper and masking tape.

CAUTION

Wear respirator during spray paint operations.

(d) Brush-paint or spray outer surfaces of fiber tube and cap with coating compound.

(e) Air-dry until surface is no longer tacky.

(f) Inspect to assure complete coverage. Repaint spots as necessary.

(g) Remove masking tape and paper from cap and inner tube.

(h) Cover fiber surfaces with masking tape and paper.

CAUTION

Wear respirator during spray paint operations.

(i) Spray metal ends with zinc chromate primer.

(j) Air-dry until surface is no longer tacky.

(k) Spray metal ends with black paint.

(l) Air-dry until surface is no longer tacky.

(m) Inspect to assure complete coverage. Repaint as necessary to cover spots.

(n) Remove masking tape and paper.

4-18. Color Coding of Boxes with Light Loads

a. General. Organizations will apply this procedure only when boxes with less than full contents are to be returned to storage area or transported to new location. When painting of boxes is required, re-marking (except quantity) may be avoided by applying masking tape on markings prior to painting box.

b. Tools and equipment.

(1) Paint brush.

(2) Paint sprayer.

(3) Can, disposable flammable waste.

(4) Safety can, plunger type.

(5) Stencil kit, rubber type set.

(6) Respirator.

c. Expendable supplies. Orange paint, and masking tape.

d. Procedure. Boxes with less than full contents will be painted orange as follows:

(1) Check contents with markings on box to verify that nomenclature and lot number are correct.

(2) Make diagram of markings on box and record all markings except quantity figure.

CAUTION

Use respirator during spray paint operations.

(3) With brush or paint sprayer apply orange paint to all outer surfaces of box. If enamel is not available use orange lacquer.

(4) When box is dry, re-mark box from diagram according to paragraph 4-19.

(5) Count quantity of items in box and mark number on box in the same position as original quantity figure.

(6) Stencil words "LIGHT BOX" on each side of box, using approximately same size letters as original markings.

4-19. Marking

a. General.

(1) Assure that all incorrect markings are obliterated.

(2) Clean all marking equipment as often as necessary and at end of each shift or termination of job, whichever comes first.

b. Tools and Equipment.

(1) Rubber type set.

(2) Stencil kit.

(3) Fountain stencil brush.

(4) Worktable.

(5) Can, disposable flammable waste.

(6) Safety can, plunger type.

c. Expendable Supplies.

(1) Rags.

(2) Stencil ink.

(3) Solvent, trichloroethane.

(4) Disposable gloves.

(5) Masking tape.

(6) Stencil board (GS level).

d. Procedure for Packaging Materials.

(1) Unless otherwise specified, markings will be of a color which contrasts with color of packaging material.

(2) For specific markings see ammunition data card or copy from old package.

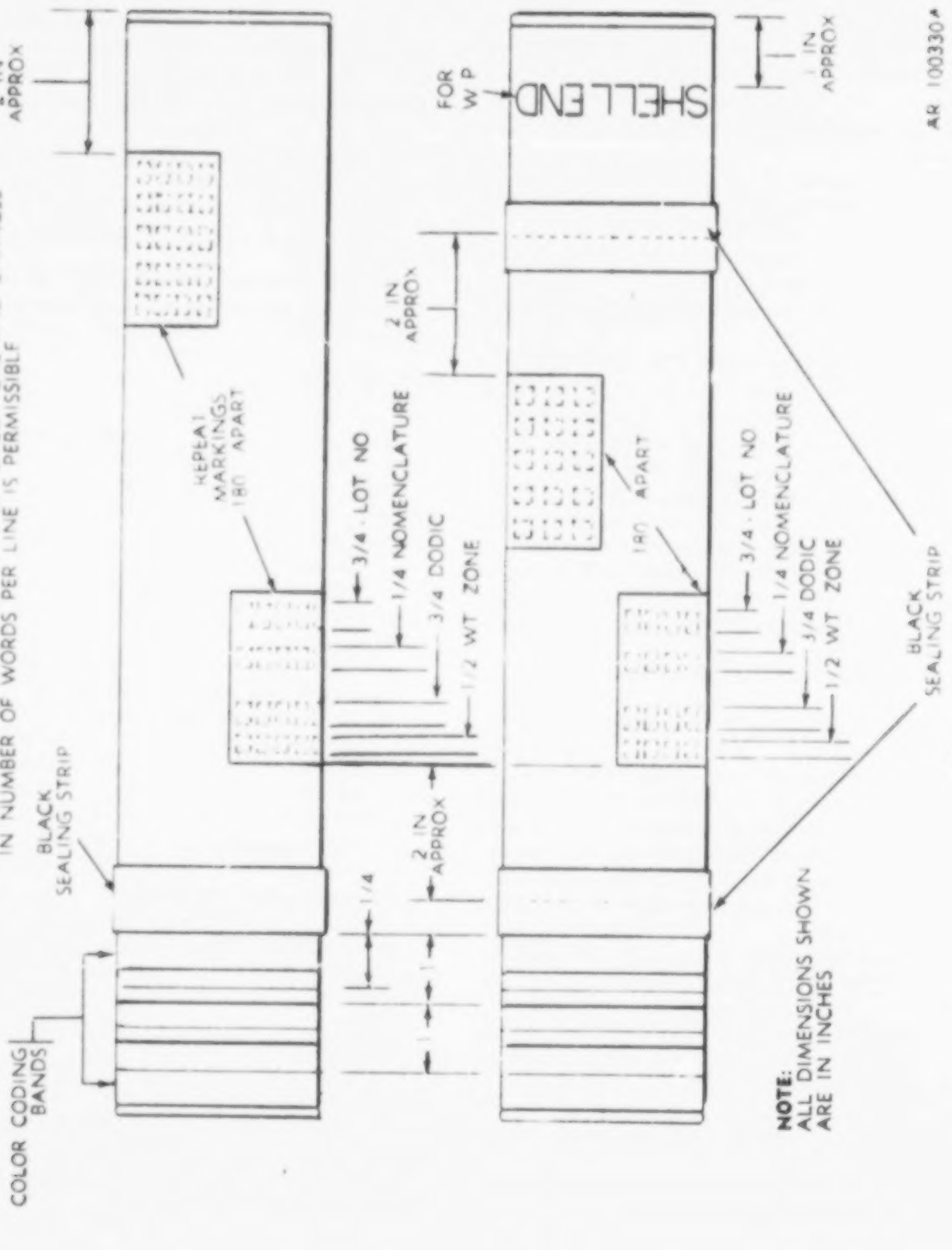
(3) For location and sizes of markings refer to figures 4-1 through 4-5.

(4) Re-marking is not required on waxed surfaces; however, inner pack must be marked with information usually found on item. If items have no inner packs, information must be

NOTES: A. APPLY MARKING PERPENDICULAR TO AXIS OF CONTAINER TO READ FROM TOP TO BOTTOM

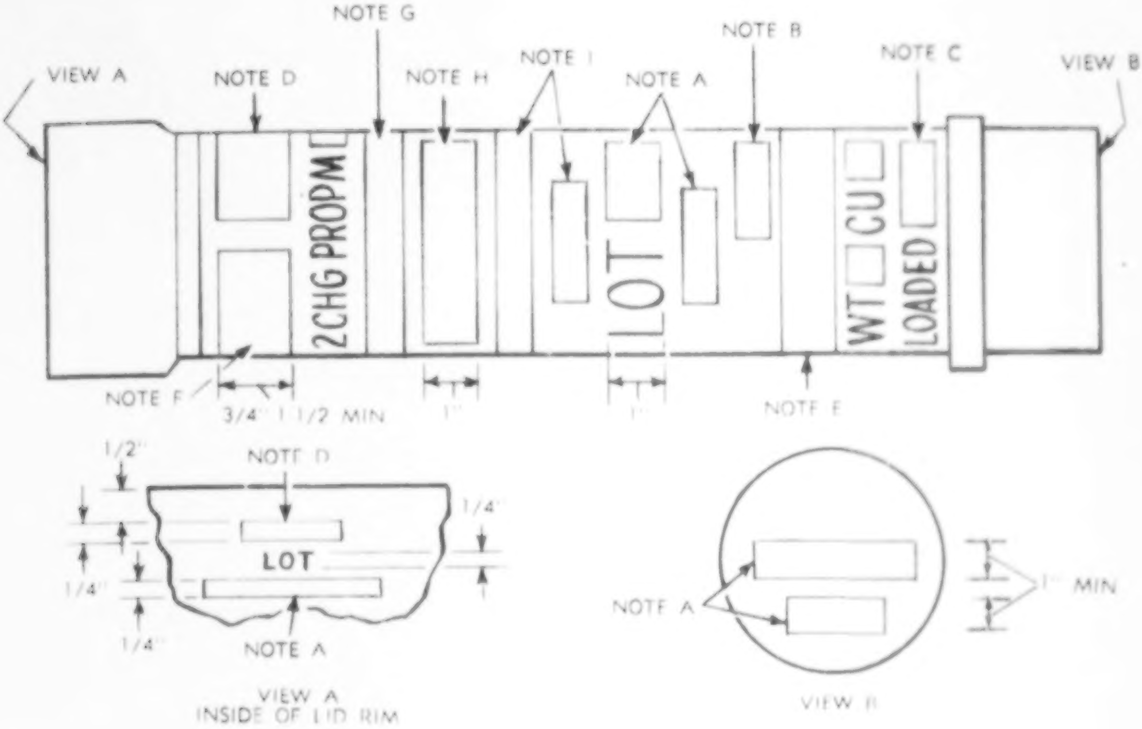
B. SIZE OF LETTERS SHALL BE AS SHOWN WITH TOLERANCE OF PLUS OR MINUS 1/32 INCH

C. STANDARD ABBREVIATIONS IN NOMENCLATURE AND CHANGES IN NUMBER OF WORDS PER LINE IS PERMISSIBLE


COLOR CODING BANDS
BLACK SEALING STRIP
2 IN APPROX
REPEAT MARKINGS 180 APART
3/4 - LOT NO
1/4 NOMENCLATURE
3/4 DODIC
1/2 WT ZONE
2 IN APPROX
1/4
1
1
SHELL END
FOR W P
1 IN APPROX
2 IN APPROX
180 APART
3/4 - LOT NO
1/4 NOMENCLATURE
3/4 DODIC
1/2 WT ZONE
BLACK SEALING STRIP
AR 100330A

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES

Figure 4-1. Marking on fiber containers


NOTE G
NOTE B
NOTE I
NOTE C
VIEW A
NOTE D
NOTE H
NOTE A
VIEW B
2CHG PROPM
LOT
WT CU
LOADED
NOTE F
3/4" 1 1/2 MIN
1"
1"
NOTE E
1/2"
NOTE D
1/4"
LOT
1/4"
1/4"
NOTE A
VIEW A
INSIDE OF LID RIM
NOTE A
1" MIN
VIEW B

NOTES A INSERT LOT NO INCLUDING YEAR OF MFR (LAST 2 DIGITS)
B INSERT "GREEN BAG" WHEN APPLICABLE
C INSERT MONTH AND YEAR LOADED
D INSERT DODIC
E FOR WHITE BAG CHARGES ONLY, ENCIRCLE CONTAINER WITH 3-INCH WIDE WHITE BAND AND DISREGARD NOTE B
F INSERT FSN
G INSERT NUMBER AND DESIGNATION OF PRIMER
H CALIBER AND WEAPON DESIGNATION
I DOT MARKINGS

AR 100021

Figure 4-2. Marking on propelling charge container

stenciled on cardboard and included in repacked box.

(5) Apply markings by either rubber-type or stencil method outlined in *f*. below.

e. Procedure for Ammunition.

(1) See TM 9-1300-251-20 for color coding. Generally colors used in repainting or marking will be the same as those colors originally found on the ammunition.

(2) For specific markings, see ammunition data card or another item from same lot.

(3) For location and size of markings, refer to appendix D. Note that sizes may not be the same as they were originally because only a limited number of size stencils are available at DS and GS levels.

(4) Apply markings by either rubber-type or stencil method outlined in *f*. below.

f. Methods.

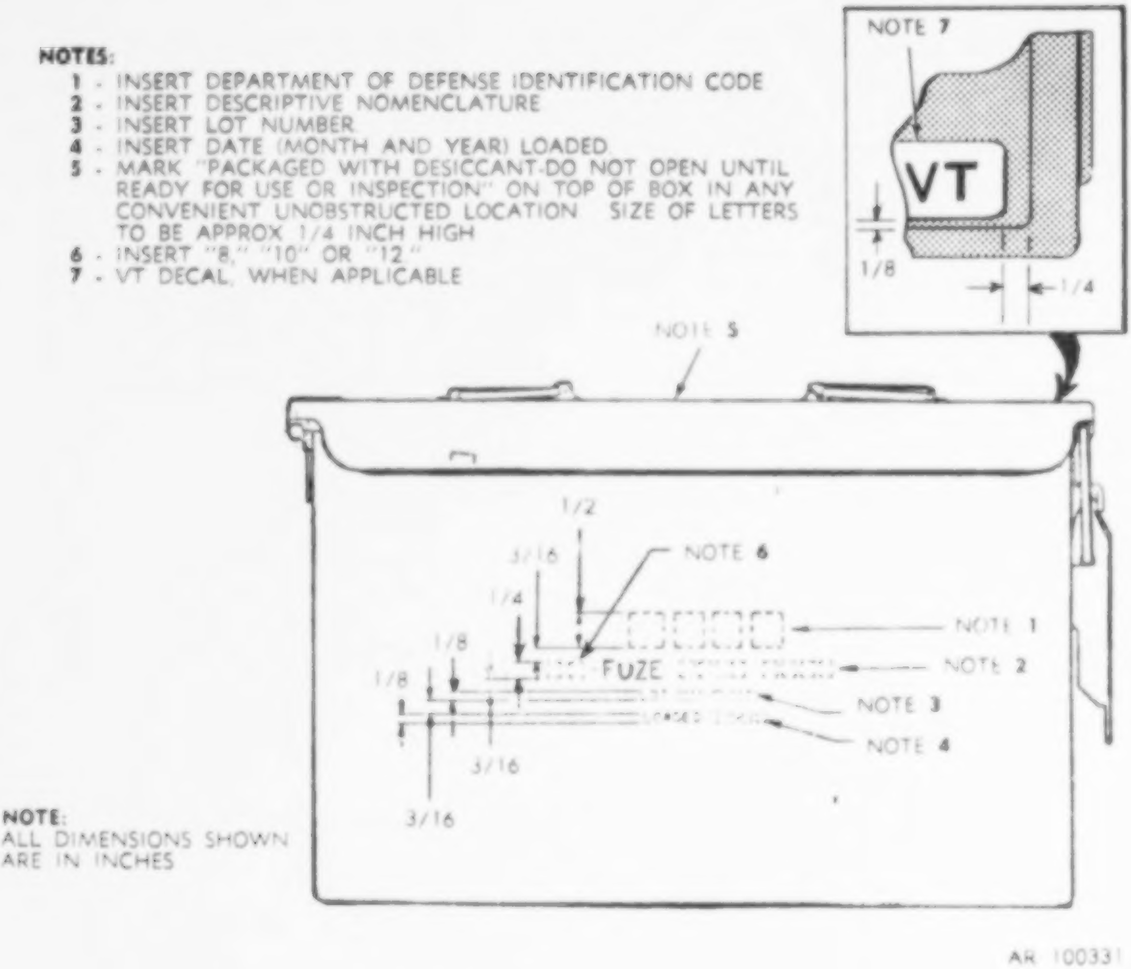
(1) *Rubber-type method.*

(*a*) Set type in holder giving required information.

(*b*) Apply a small amount of ink to ink plate.

(*c*) Roll brayer back and forth on ink plate to distribute ink on brayer.

(*d*) Roll inked brayer lightly across face of rubber type to apply light film of ink to type.



NOTES:

1 - INSERT DEPARTMENT OF DEFENSE IDENTIFICATION CODE
2 - INSERT DESCRIPTIVE NOMENCLATURE
3 - INSERT LOT NUMBER
4 - INSERT DATE (MONTH AND YEAR) LOADED
5 - MARK "PACKAGED WITH DESICCANT-DO NOT OPEN UNTIL READY FOR USE OR INSPECTION" ON TOP OF BOX IN ANY CONVENIENT UNOBSTRUCTED LOCATION. SIZE OF LETTERS TO BE APPROX 1/4 INCH HIGH
6 - INSERT "8," "10" OR "12."
7 - VT DECAL, WHEN APPLICABLE

NOTE:
ALL DIMENSIONS SHOWN ARE IN INCHES

Figure 4-3. Marking on metal packing box.

(*c*) Place item in position to receive marking, then roll carefully across face of rubber type to apply ink marking.

(2) *Stencil method.*

(*a*) Make a stencil giving required information.

(*b*) Apply small dab of ink to ink plate.

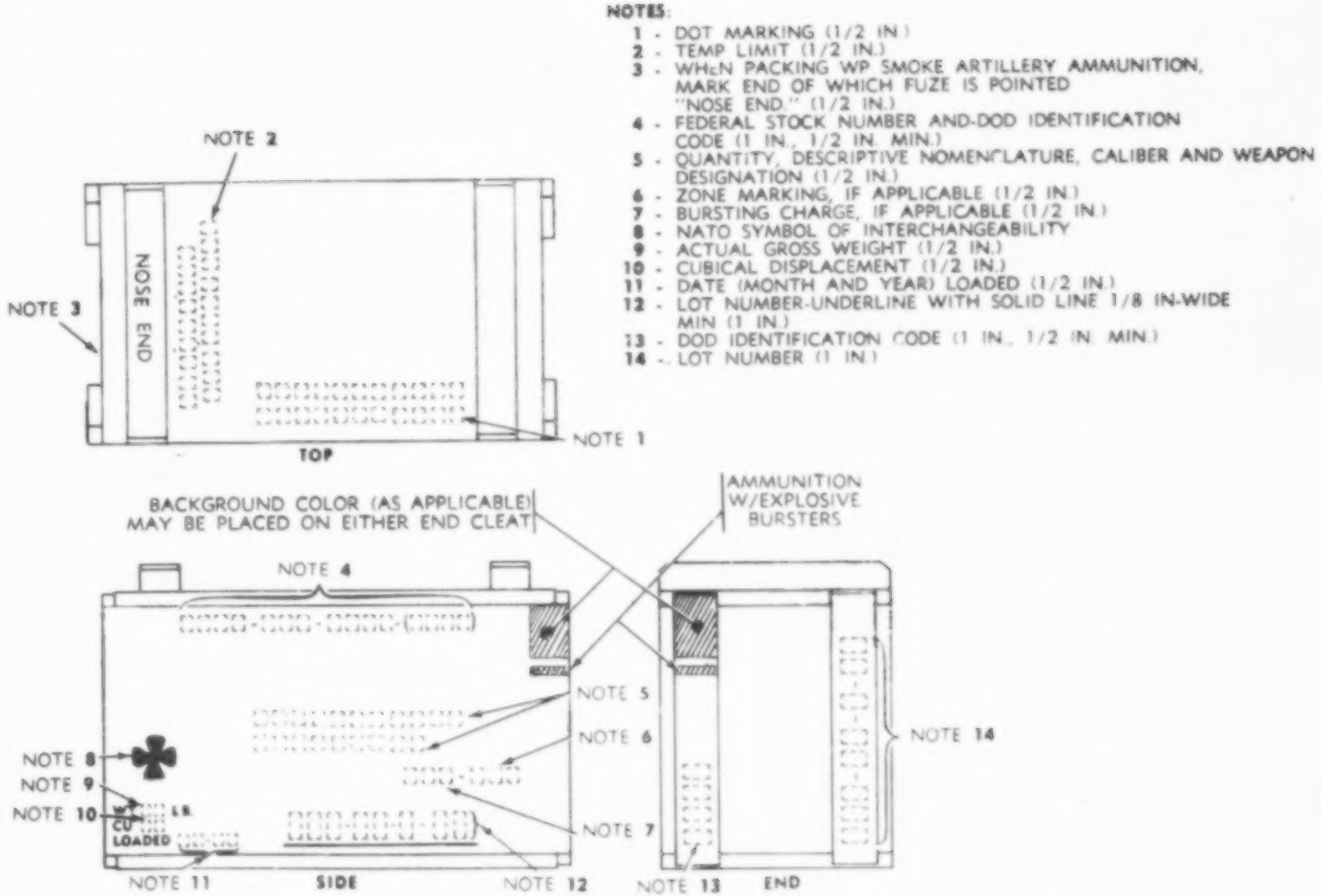
(*c*) Rub brush in ink to apply ink to bristles.

(*d*) Position stencil over location on item to receive marking.

(*e*) While holding stencil firmly against item (using masking tape if required), rub bristles of brush over stencil to apply inked marking to item. (A spray gun or can with paint of proper color may be used as an alternate.)

(*f*) Remove stencil and/or masking tape.

(*g*) Check markings to make sure they are correct, neat, and legible.


NOTE 2
NOTE 3
NOSE END
NOTE 1
TOP
BACKGROUND COLOR (AS APPLICABLE) MAY BE PLACED ON EITHER END CLEAT
AMMUNITION W/EXPLOSIVE BURSTERS
NOTE 4
NOTE 5
NOTE 6
NOTE 7
NOTE 8
NOTE 9
NOTE 10
WT
LB
CU FT
LOADED
NOTE 11
SIDE
NOTE 12
NOTE 13
END
NOTE 14

NOTES:

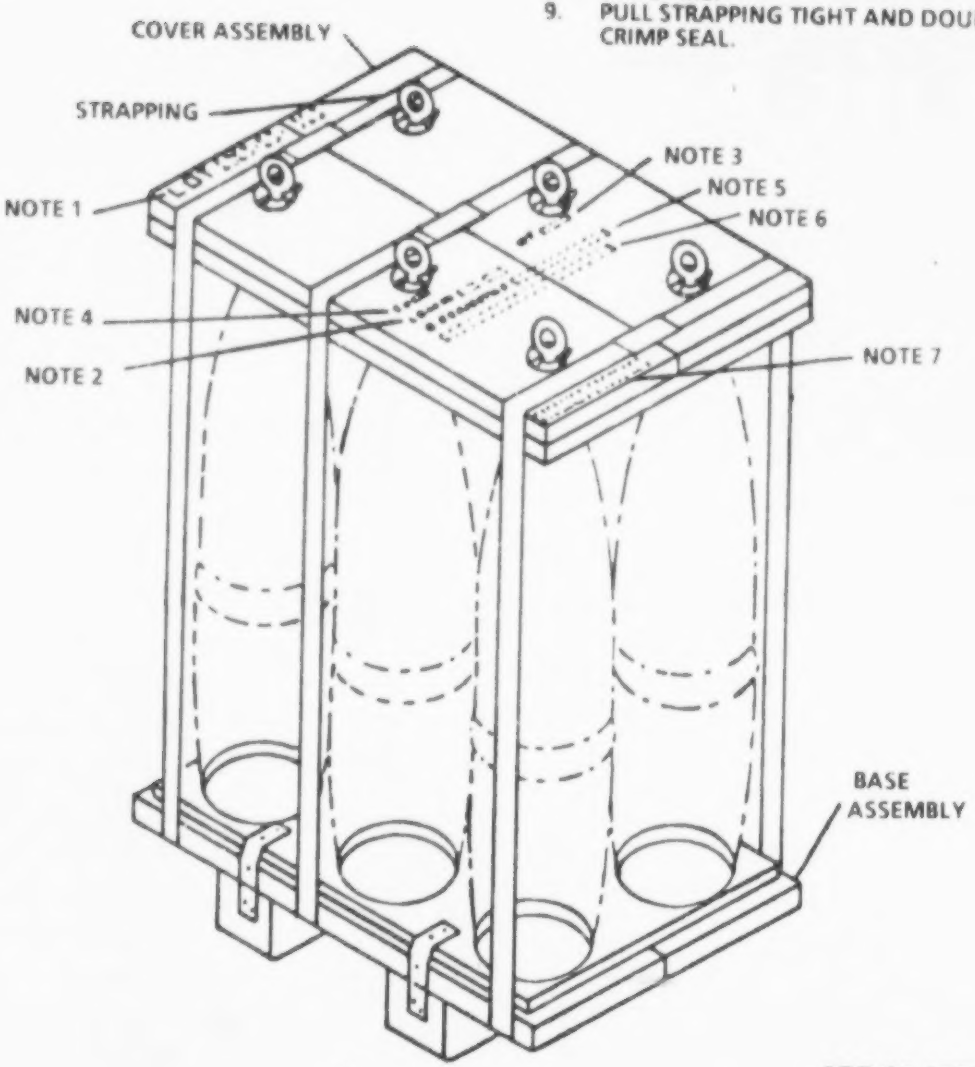
1 - DOT MARKING (1/2 IN.)
2 - TEMP LIMIT (1/2 IN.)
3 - WHEN PACKING WP SMOKE ARTILLERY AMMUNITION, MARK END OF WHICH FUZE IS POINTED "NOSE END." (1/2 IN.)
4 - FEDERAL STOCK NUMBER AND-DOD IDENTIFICATION CODE (1 IN., 1/2 IN. MIN.)
5 - QUANTITY, DESCRIPTIVE NOMENCLATURE, CALIBER AND WEAPON DESIGNATION (1/2 IN.)
6 - ZONE MARKING, IF APPLICABLE (1/2 IN.)
7 - BURSTING CHARGE, IF APPLICABLE (1/2 IN.)
8 - NATO SYMBOL OF INTERCHANGEABILITY
9 - ACTUAL GROSS WEIGHT (1/2 IN.)
10 - CUBICAL DISPLACEMENT (1/2 IN.)
11 - DATE (MONTH AND YEAR) LOADED (1/2 IN.)
12 - LOT NUMBER-UNDERLINE WITH SOLID LINE 1/8 IN-WIDE MIN (1 IN.)
13 - DOD IDENTIFICATION CODE (1 IN., 1/2 IN. MIN.)
14 - LOT NUMBER (1 IN.)

AR 100332A

Figure 4-4. Marking on wooden packing box.

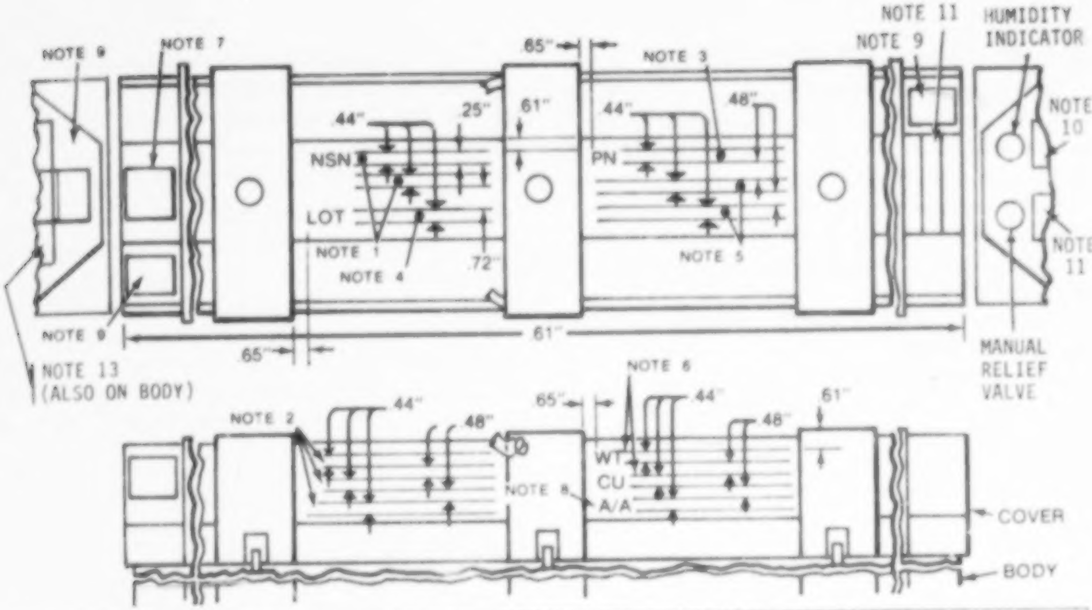
GENERAL NOTES

1. INSERT LOT NUMBER.
2. INSERT MONTH AND YEAR LOADED.
3. INSERT GROSS WEIGHT.
4. INSERT CUBIC DISPLACEMENT.
5. INSERT DESCRIPTIVE NOMENCLATURE.
6. INSERT ICC DESIGNATION.
7. INSERT FSN AND DODIC.
8. PACK 6 PROJECTILES IN PALLET FOR 8" AND 175mm, 8 PROJECTILES IN PALLET FOR 155mm. ARRANGEMENT OF STRAPPING AND MARKINGS ARE THE SAME.
9. PULL STRAPPING TIGHT AND DOUBLE CRIMP SEAL.

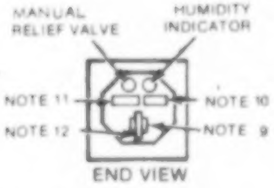

COVER ASSEMBLY
STRAPPING
NOTE 1
NOTE 3
NOTE 5
NOTE 6
NOTE 4
NOTE 2
NOTE 7
BASE ASSEMBLY

ARD 84-1752

Figure 4-4.1 Palletizing.


NOTE 9
NOTE 7
.65"
NOTE 3
NOTE 11
NOTE 9
HUMIDITY INDICATOR
NOTE 10
.44"
.25"
.61"
.44"
.48"
NSN
PN
LOT
NOTE 1
NOTE 4
.72"
NOTE 5
NOTE 11
NOTE 9
.61"
.65"
MANUAL RELIEF VALVE
NOTE 13 (ALSO ON BODY)
NOTE 6
NOTE 2
.44"
.48"
.65"
.44"
.61"
.48"
WT
CU
A/A
NOTE 8
COVER
BODY

MARKING TABLE					SHIPPING AND STORAGE INFORMATION	
PACKING ASSY. PART NO.	NOMENCLATURE	NSN	PROJECTILE PART NO.	DOT	EXPLOSIVE HAZARD CLASS	STORAGE COMPATIBILITY
9305335-1	**1-PROJECTILE 155MM: HEAT CANNON LAUNCHED GUIDED M712**	1320-01-077 -4279-D510	9305300	EXPLOSIVE PROJECTILE	1.1	D
9305335-2	1-PROJECTILE 155MM: TRAINING M823 (INERT)	1320-01-077 -4278-D511	9329721	—	—	—


MANUAL RELIEF VALVE
HUMIDITY INDICATOR
NOTE 11
NOTE 10
NOTE 12
NOTE 9
END VIEW

*NOTES:
1. National Stock No. and DOD Identification Code (see Marking Table).
2. Nomenclature.
3. Projectile Part No. (see Marking Table).
4. Lot No. and Year of Manufacture (last 2 digits only).
5. DOT (see Marking Table).
6. Gross weight and cubical displacement.
7. Method II Label, NSN 7540-00-139-4738, approximately as shown (M712 only).
8. Show level of packaging and packing, month and year packed.
9. Apply 4 bronze patches (M823 trainer only). Size of patches 2 in. square, except end patches may be reduced in size to fit space, but will be no smaller than 1-1/4 in. square.
10. Apply "Humidity Indicator" decal.
11. Apply "Manual Relief Valve" decal.
12. White stripe here indicates prior repackaging (M712 projectile only). Digits here indicate number of hours projectile was out of container.
13. Apply "Retain as Matched Set" decals to body and cover.

*Container color is forest green. Distinguishing markings for M712 projectile are yellow; for M823 projectile they are white.

ARD 81-0095-8

Figure 4-5. Marking on Copperhead metal containers.

Section IV. MAINTENANCE OF COPPERHEAD ITEMS

4-20. M712 and M823 Projectiles

a. M712 Projectile in Container.

(1) When projectile is out of container under 72 hours, reissue as serviceable ammunition; over 72 hours, send to Anniston AAD.

(2) Unservicable container.

(a) Repackage projectile in serviceable spare container, following repackaging procedures in TM 9-1300-251-20.

(b) Forward unserviceable container to Depot for repair or disposal.

(3) Projectile requiring touchup, painting, or marking. Perform maintenance as directed in Section V.

(4) Every 90 days, check humidity indicator card in container. If 40 percent sector of card is not blue, change card and desiccant as instructed in paragraph 4-9.*d*.

b. M823 Projectile.

(1) Perform required touchup, painting, or marking as directed in Section V.

(2) Replace following parts as required, following procedures in TM 9-1300-251-20:

(a) Code and time switches.

(b) Ogive (nose cone).

(c) Obturator and/or base.

4-21. Metal Containers

a. Unserviceable container (unreparable at DS/GS level). Forward to Depot for repair or disposal.

b. Unserviceable container that can be made serviceable at DS/GS level. Perform required maintenance as directed in Section III or Section V.

c. Store serviceable spare containers for reuse in repackaging rounds from unserviceable containers.

4-22. Pallets

a. Store serviceable pallets for reuse.

b. Repair unserviceable reparable pallets as directed in TM 9-1300-251-20.

c. Unserviceable unreparable pallets will be disposed of in accordance with applicable SOP.

APPENDIX A

REFERENCES

A-1. Administrative Publications

a. Army Regulations.

Reporting of Transportation Discrepancies in Shipments	AR 55-38
Malfunctions Involving Ammunition and Explosives	AR 75-1
Accident Reporting and Records	AR 385-40
Ammunition Stockpile Reliability Program (ASRP)	AR 702-6
Reporting of Item and Packaging Discrepancies	AR 735-11-2
Storage and Supply Activity Operations	AR 740-1
Ammunition Advisors and Specialists	AR 742-9

b. DA Pamphlets.

Consolidated Index of Army Publications and Blank Forms	DA Pam 310-1
The Army Maintenance Management System (TAMMS)	DA Pam 738-750

A-2. Blank Forms

Discrepancy in Shipment Report	SF 361
U. S. Army Accident Investigation Report	DA Form 285
Recommended Changes to Publications and Blank Forms	DA Form 2028
Maintenance Request	DA Form 2407
Ammunition Condition Report	DA Form 2415
Fire Report	DA Form 3985

A-3. Doctrinal, Training and Organizational Publications

Explosives and Demolitions	FM 5-25
Conventional Ammunition Maintenance Unit Operations	FM 9-19

A-4. Equipment Manuals

a. Technical Manuals.

Ammunition and Explosives Standards	TM 9-1300-206
Ammunition, General	TM 9-1300-200
Ammunition Maintenance	TM 9-1300-250
Data Sheets for Ordnance Type Material	TM 9-500
Destruction of Conventional Ammunition and Improved Conventional Munitions to Prevent Enemy Use (Excluding Toxic and Incapacitating Chemical Agents) (For Combat Only)	TM 750-244-5-1
Operator and Organizational Maintenance Manual: Rifle, Recoilless, 106-mm: M40A2 and M40A4	TM 9-1000-205-12
Operator/Crew and Organizational Maintenance Manual for Howitzer, Light, Towed 105-mm, M101 and 105-mm, M101A1	TM 9-1015-203-12

Operator and Organizational Maintenance Manual Howitzer, Light, Towed: 105-mm, M102	TM 9-1015-234-12
Operator's and Organizational Maintenance Manual for Howitzer, Medium, Towed, 115-mm: M114 and M114A1, and Howitzer, Medium, Towed, Auxiliary Propelled, 155-mm: M123A1	TM 9-1025-200-12
Operator's Manual for Howitzer, Medium, Towed: 155-mm, M198	TM 9-1025-211-10
Operator's Manual for Gun, Field Artillery, SP, 175mm: M107, and Howitzer, Heavy, SP, 8-inch: M110	TM 9-2300-216-10
Operator's Manual: Tank, Combat, Full Tracked: 105-mm Gun, M60A1 and 105-mm Gun, M60	TM 9-2350-215-10
Operator's Manual for Howitzer, Medium, SP, 155mm: M109, M109A1 and M109A3	TM 9-2350-217-10
Operator's Manual for Vehicle, Combat Engineer, Full-Tracked: M728 (T118E1)	TM 9-2350-222-10
Operator's Manual: Tank, Combat, Full Tracked: 90-mm Gun, M484A3	TM 9-2350-224-10
Operator and Organizational Maintenance Manual: Armored Reconnaisance/Airborne Assault Vehicle, Full-Tracked: 152-mm, M551A1	TM 9-2350-230-12
Operator's Manual for Tank, Combat, Full Tracked: 152-mm Gun Launcher M60A2	TM 9-2350-232-10
Operator's Manual for Howitzer, Medium, Self-Propelled: 155mm, M109A2	TM 9-2350-303-10
Organizational Maintenance Manual (Incl RPSTL) Artillery Ammunition for Guns, Howitzers, Mortars, Recoilless Rifles and 40-mm Grenade Launchers	TM 9-1300-251-20
Army Ammunition Data Sheets Artillery Ammunition Guns, Howitzers, Mortars, Recoilless Rifles, Grenade Launchers and Artillery Fuzes (FSC1310, 1315, 1320, 1390)	TM 43-0001-28

b. Technical and Supply Bulletins

Munitions: Restricted or Suspended Ammunition	TB 9-1300-385-1
Federal Supply Classification: Part I, Groups and classes (Cataloging Handbook H2-1)	SB 708-21
Department of Defense Ammunition Code (Cataloging Handbook H3)	SB 708-30

A-5. Supply Catalog

FSC Group 13 Ammunition and Explosives (Classes 1305-1330)	SC 1305/30-IL
FSC Group 13 Ammunition and Explosives (Classes 1340-1398)	SC 1340/98-IL
Shop Equipment, Ammunition Renovation: Field Maintenance Detachment, Less Power (4925-754-0710) (Line Item W59719) and Shop Equipment, Ammunition Renovation: Field Maintenance Detachment, MAP only (4925-919-0067)	SC 4925-95-CL-A03
Tool Set, Ammunition: Field Maintenance, Ordnance Ammunition Company (4940-322-6058) (Line Item W59582 Formerly Line Item 454628) and Tool Set Ammunition: Field Maintenance, Ordnance Ammunition Company, MAP only (4940-919-0113)	SC 4940-95-CL-A11

APPENDIX B

DIRECT SUPPORT AND GENERAL SUPPORT REPAIR PARTS AND SPECIAL TOOLS LIST

Section I. INTRODUCTION

B-1. Scope

This appendix lists repair parts and special tools required for the performance of direct support and general support maintenance of artillery ammunition for guns, howitzers, mortars, recoilless rifles and 40-mm grenade launchers.

B-2. General

This appendix is divided into the following sections:

a. Repair Parts List-Section II. A list of repair parts authorized for the performance of maintenance at direct support and general support levels.

b. Special Tools List —Section III. A list of special tools, test and support equipment authorized for the performance of maintenance at direct support and general support levels.

c. National Stock Number and Part Number Indes —Section IV. A list, in ascending numerical sequence, of all National stock numbers appearing in the listings, followed by a list in alphameric sequence of all part numbers appearing in the listings. National stock number and part numbers are cross-referenced to each item number.

B-3. Explanation of Columns

The following provides an explanation of columns in Sections II and III.

a. Item Number. Item number indicates the number used to reference the item on the listings. It consists of the following:

(1) *Repair parts list.* Item number is comprised of the group number (see maintenance allocation chart, TM 9-1300-251-20) followed by an assigned number according to alphameric sequence within the group.

(2) *Special tools list.* Item number is an assigned number given to each special tool. This number corresponds, if applicable, to the number used in column (4) of the maintenance allocation chart.

b. Source, Maintenance, and Recoverablilty Codes (SMR).

(1) *Source code.* Source code (first and second positions) indicates the source for the listed item. Source codes are:

Code	*Explanation*
PA	Item procured and stocked for anticipated or known usage.
XB	Item is not procured or stocked. If not available through salvage, requisition.

(2) *Maintenance code.* Maintenance code consists of two parts—USE code (third position) and REPAIR code (fourth position). USE code indicates the lowest maintenance level authorized to remove, replace, and use the listed item. REPAIR code indicates whether the item is to be repaired, and identifies the lowest maintenance level authorized to repair the listed item. Maintenance codes are:

Code	*Explanation*
use	
F	Support item is removed, replaced, and used at the direct support level.
H	Support item is removed, replaced, and used at the general support level.
O	Support item is removed, replaced, and used at the organizational level.
Repair	
D	The lowest maintenance level capable of complete repair of the support item is the depot level.
F	The lowest maintenance level capable of complete repair of the support item is the direct support level.
O	The lowest maintenance level capable of complete repair of the support item is the organizational lebel.
Z	Nonreparable. No repair is authorized.

(3) *Recoverability code.* Recoverability code (fifth position) indicates the disposition action on an unserviceable item. Recoverability codes are:

Code	*Explanation*
F	Reparable item. When uneconomically reparable, condemn and dispose of at direct support level.
L	Reparable item. Repair, condemnation, and disposal not authorized below depot/specialized repair activity level.
O	Reparable item. Where uneconomically reparable, condemn and dispose of at organizational level.
Z	Nonreparable item. When unserviceable, condemn and dispose of at the level indicated in position 3 (USE code).

c. National Stock Numer. This column indicates the National stock number assigned to the item and will be used for requisitioning purposes.

d. Part Number. This column indicates the primary number used by the manufacturer (individual company, firm, corporation, or Government activity), which controls the design characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

e. Federal Supply Code for Manufacturers (FSCM). This column indicates a 5-digit numeric code used to identify the manufacturer, distributor, or Government agency that controls the design characteristics of the item.

f. Description. This column indicates the Federal item name and any additional description of the item required.

g. Unit of Measure (U/M). A two-character alphabetic abbreviation indicating the unit upon which the allowances are based; e.g., ft, ea, pr, etc.

h. Quantity Incorporated in Unit. This column indicates the quantity of the item used with or on the equipment.

B-4. How to Locate Repair Parts

a. Where National Stock Number or Reference Number is unknown:

(1) *First.* Using the maintenance allocation chart, TM 9-1300-241-20, section II, determine the functional or subfunctional group applicable to the repair part; i.e., fixed ammunition, cartridge (complete round), etc. This is necessary since item numbers are divided according to the same group numbers.

(2) *Second.* A number according to alphameric sequence has been assigned to each repair part within the same functional or subfunctional group. The part is listed opposite the item number shown.

b. When National Stock Number or Part Number is known:

(1) *First.* Using the index of National stock Numbers or Reference Numbers, find the pertinent National Stock Number or Reference Number. This index is in ascending NSN sequence followed by a list of reference numbers in ascending alphameric sequence, cross-referenced to the item number.

(2) *Second.* After finding the item number, locate the item number in the repair parts list.

B-5. Federal Supply Code for Manufacturers

Code	*Manufacturer*
19203	Picatinny Arsenal
21450	U.S. Army Weapons Command
45092	Osborne Manufacturing
49234	Protecto Seal Co.
81348	Federal Specifications
81349	Military Specifications

Section II. REPAIR PARTS LIST

(1) Item No.	(2) SMR code	(3) National stock No.	(4) Part No.	(5) Fed supply code for mfg	(6) Description	(7) Unit of measure	(8) Quantity incorporated in unit
					GROUP: 01 FIXED AMMUNITION (EXCEPT 152-MM) 0101: CARTRIDGE (COMPLETE ROUND		
0101-1	XBOOO	8140-00-403-5605	8796464	19203	BOX, PACKING, AMMUNITION: for Container, M66A1 for Cartridges 40-MM, MK 2, M81 Series and M91.	ea	1
0101-1.1	XB000	Requested	12619468	19203	Box, Ammunition: Metal, Container for Cartridges, 40-MM, M811, M813, M822 and M851.	ea	1
0101-2	XBOOO	8140-00-827-6231	76-1-1112	19203	CONTAINER, AMMUNITION: M66A1 for Cartridges 40-MM, Mk 2, M81 Series and M91.	ea	1
0101-3	XBOOO	8140-00-825-1362	8835104	19203	BOX, PACKING, AMMUNITION: for Cartridges 40-MM, M381, M382, M386, M406, M407, M433, M407A1, M441, M576.	ea	1
0101-4	XBOOO	8140-00-825-1361	8835105	19203	BOX, PACKING, AMMUNITION: for Cartridges, 40-MM, M381, M382, M386, M406, M433, M407A1, M441, M576.	ea	1
0101-5	XBOOO	8140-00-828-2938	7553315	19203	CHEST, AMMUNITION: Metal, M19A1 for Cartridges, 40-MM, M674, M675.	ea	1

See footnotes at end of this table.

(1) Item No.	(2) SMR code	(3) National stock No.	(4) Part No.	(5) Fed supply code for mfg	(6) Description	(7) Unit of measure	(8) Quantity incorporated in unit
0101-6	XBOOO	8140-00-200-4260	5581378	19203	BOX, WIREBOUND, PACKING AMMUNITION: for Cartridges 40-MM, M674, M675.	ea	1
0101-7	XBOOO	8140-00-008-3195	9251996	19203	BOX, FIBER PACKING AMMUNITION: for Cartridges, 40-MM, M383, M384, M385, M430.	ea	1
0101-8	XBOOO	8140-00-008-3194	9251995	19203	BOX, WIREBOUND, PACKING, AMMUNITION: for Cartridges, 40-MM, M383, M384 M385	ea	1
0101-9	XBOOO	8140-00-184-8259	9209205	19203	BOX, WIREBOUND, PACKING, AMMUNITION: for Cartridges: 40-MM, M583, M583A1, M585, M661, M662, M713, M715, M716	ea	1
0101-10	XBOOO	8140-00-960-1699	9209204	19203	CHEST, AMMUNITION: Metal PA 2 for Cartridges, 40-MM M583, M583A1, M585, M661, M662, M713, M715, M716	ea	1
0101-11	XBOOO	8140-00-827-6234	7549268	19203	BOX, PACKING, AMMUNITION: for Cartridge, 75-MM, Blank, M337A2.	ea	1
0101-12	XBOOO	8140-00-827-6344	7549269	19203	CONTAINER, AMMUNITION, FIBER: M27A2 for Cartridge, 75-MM, Blank, M337A2.	ea	1
0101-13	XBOOO	8140-00-009-0031	76-1-1236	19203	BOX, PACKING, AMMUNITION: for Cartridge, 90-MM, M82.	ea	1
0101-14	XBOOO	8140-00-144-9823	76-1-1105	19203	CONTAINER, AMMUNITION: M96A2 for Cartridge, 90-MM, M82.	ea	1
0101-15	XBOOO	8140-00-089-8666	9213[illegible]	19203	BOX, PACKING, AMMUNITION: for Cartridge, 90-MM, M580.	ea	1
0101-16	XBOO	8140-00-826-5424	9213660	19203	CONTAINER, AMMUNITION: M565 for Cartridge, 90-MM, M580.	ea	1
0101-17	XBOOO	8140-00-854-6801	7548476	19203	BOX, PACKING, AMMUNITION: for Cartridges, 90-MM, M381 Series and M353 Series.	ea	1
0101-18	XBOOO	8140-00-857-3020	7548467	19203	CONTAINER, AMMUNITION: M180A1 for Cartridges, 90-MM. M318 Series and M353 Series.	ea	1
0101-19	XBOOO	8140-00-184-8294	9215118	19203	BOX, PACKING, AMMUNITION: for Cartridge, 90-MM Canister, M336.	ea	1
0101-20	XBOOO	8140-000-089-8535	9215119	19203	CONTAINER, AMMUNITION: M287, for Cartridge, 90-MM, Canister, M336.	ea	1
0101-21	XBOOO	8140-00-010-6236	8798641	19203	BOX, PACKING, AMMUNITION: for Cartridge, 90-MM Canister, M377.	ea	1
0101-22	XB000	8140-00-890-7593	8798640	19203	CONTAINER, AMMUNITION, FIBER: M403 for Cartridge, 90-MM Canister, M377.	ea	1
0101-23	XBOOO	8140-00-857-3023	7548306	19203	BOX, PACKING, AMMUNITION: for Cartridges, 90-MM, M12 Series, M71 Series and M313 Series.	ea	1
1010-24	XBOOO	8140-00-857-3021	7548301	19203	CONTAINER, AMMUNITION: M53A4 for Cartridges, 90-MM, M12 Series, M71 Series and M313 Series.	ea	1
0101-25	XBOOO	8140-00-184-8355	8887602	19203	BOX, PACKING, AMMUNITION: for Cartridge, 90-MM, M348 Series.	ea	1
0101-26	XBOOO	8140-00-184-8252	8887601	19203	CONTAINER, AMMUNITION: T73E1 for Cartridge, 90-MM, M348 Series.	ea	1
0101-27	XBOOO	8140-00-828-7404	8800077	19203	BOX, PACKING, AMMUNITION: for Cartridge, 90-MM, M1431 Serues.	ea	1
0101-28	XBOOO	8140-00-824-0815	8800078	19203	CONTAINER, AMMUNITION: M411 for Cartridge, 90-MM, M431 Series	ea	1
0101-29	XBOOO	8140-00-184-8239	76-1-1237	19203	BOX, PACKING, AMMUNITION: for Cartridge, 90-MM, M332 Series.	ea	1
0101-30	XBOOO	8140-00-184-8357	76-1-1106	19203	CONTAINER, AMMUNITION: M184A2 for Cartridge, 90-MM, M332 Series	ea	1
0101-31	XBOOO	8140-00-859-8015	8796716	19203	BOX, PACKING, AMMUNITION: for Cartridge, 90-MM: M371A1 and M371 (M739).	ea	1
0101-32	XBOOO	8140-00-824-0814	8796717	19203	CONTAINER, AMMUNITION: PA56 for Cartridge, 90-MM, M371A1 and M371 (M739).	ea	1

See footnotes at end of this table.

(1) Item No.	(2) SMR code	(3) National stock No.	(4) Part No.	(5) Federal supply code for mfg	(6) Description	(7) Unit of meas ure	(8) Qty incor-porated in unit
0101-33	XBOOO	8140-00-089-8670	9213612	19203	BOX, PACKING, AMMUNITION: for Cartridge 90-MM, Canister, M590.	ea	1
0101-34	XBOOO	8140-00-089-8668	9213611	19203	CONTAINER, AMMUNITION: M572 for Cartridge, 90-MM Canister, M590.	ea	1
0101-35	XBOOO	8140-00-827-0519	7549249	19203	BOX, PACKING, AMMUNITION: for Cartridge, 90-MM, Blank, M394.	ea	1
0101-36	XBOOO	8140-00-149-0588	7549250	19203	CONTAINER, AMMUNITION: M125A1 for Cartridge, 90-MM Blank, M394.	ea	1
0101-37	XBOOO	8140-00-855-5961	9204454	19203	BOX, PACKING, AMMUNITION: for Cartridge, 105-MM, M494.	ea	1
0101-38	XBOOO	8140-00-855-5987	9204453	19203	CONTAINER, AMMUNITION: M563A1 for Cartridge 105-MM, M494.	ea	1
0101-39	XBOOO	8140-00-857-2981	8835039	19203	BOX, PACKING, AMMUNITION: for Cartridge, 105-MM, M392 Series, M724, M728.	ea	1
0101-40	XBOOO	8140-00-857-2990	8835040	19203	CONTAINER, AMMUNITION: M431 for Cartridge, 105-MM, M392 Series, M728.	ea	1
0101-41	XBOOO	8140-00-258-8312	9278416	19203	CONTAINER, AMMUNITION: for Cartridge, 105-MM, M724.	ea	1
0101-42	XBOOO	8140-00-857-2994	8837831	19203	BOX, PACKING, AMMUNITION: for Cartridges 105-MM, M456 Series and M490.	ea	1
0101-42.1	XBOOO	---	12551938	19203	CONTAINER, AMMUNITION, METAL: for Cartridge, 105-MM, M456A2.	ea	1
0101-43	XBOOO	8140-00-857-3005	8837852	19203	CONTAINER, AMMUNITION: M435 for Cartridges, 105-MM, M456 Series and M490.	ea	1
0101-44	XBOOO	8140-00-857-2938	8836004	19203	BOX, PACKING, AMMUNITION: for Cartridges, 105-MM, M393 Series, M416, M467, M457.	ea	1
0101-45	XBOOO	8140-00-857-2991	8836005	19203	CONTAINER, AMMUNITION: M451 for Cartridges 105-MM, M393 Series, M416, M467, M457.	ea	1
0101-46	XBOOO	8140-00-089-8678	9212554	19203	BOX, WOOD: for Cartridge, 106-MM, M581	ea	1
0101-47	XBOOO	8140-00-089-8677	9212553	19203	CONTAINER, AMMUNITION: M581 for Cartridge, 106-MM, M581.	ea	1
0101-48	XBOOO	8140-00-828-3077	7548963	19203	BOX, PACKING, AMMUNITION: for Cartridge 106-MM, M344A1.	ea	1
0101-49	XBOOO	8140-00-824-0821	7548962	19203	CONTAINER, AMMUNITION: M316 for Cartridge, 106-MM, M344A1.	ea	1
0101-50	XBOOO	8140-00-426-0983	7549070	19203	BOX, PACKING, AMMUNITION: for Cartridges, 106-MM, M346A1, M368.	ea	1
0101-51	XBOOO	8140-00-827-0476	7549071	19203	CONTAINER, AMMUNITION: M314 for Cartridges 106-MM, M346A1, M386.	ea	1
0101-52	XBOOO	8140-00-827-6345	8796482	19203	BOX, PACKING, AMMUNITION: for Cartridges, 165-MM, M123 Series, M623.	ea	1
0101-53	XBOOO	8140-00-831-0096	8796483	19203	CONTAINER, AMMUNITION: M387 for Cartridges, 165-MM, M123 Series, M623.	ea	1
0101-54	XBOOO	NO NSN	9293479	19203	CONTAINER, AMMUNITION: FOR Cartridge, 105-MM, M735, M774.	ea	1
0101-55	XBOOO	NO NSN	9293481	19203	BOX, PACKING, AMMUNITION: for Cartridge, 105-MM, M735, M774.	ea	1
0101-56	XBOOO	NO NSN	9321291	19203	BOX, PACKING, AMMUNITION: for Cartridges 105-MM, M456A2	ea	1
0101-57	XBOOO	NO NSN	9321286	19203	CONTAINER, AMMUNITINS, FIBER: PA82 for Cartridges, 105-MM, M456A2.	ea	1
*0101-58	XBOOO	NO NSN	9347387	09871	BOX, PACKING, AMMUNITION: for Cartridge, 105-MM, XM833.	ea	1
0101-59	XBOOO	NO NSN	9347384	19203	CONTAINER, AMMUNITION, FIBER: for Cartridge, 105-MM, XM833.	ea	1

See footnotes at end of this table.

(1) Item No.	(2) SMR code	(3) National stock No.	(4) Part No.	(5) Federal supply code for mfg	(6) Description	(7) Unit of measure	(8) Qty incorporated in unit
0101-60	XBOOO		9345252	09871	CONTAINER, PACKING METAL: for Cartridge, 105-MM, M833	ea	1
0101-60.1	XBOOO	8140-01-242-7394	12576282	19203	CONTAINER, AMMUNITION, METAL, PA117: for Cartridge, 105-MM, APFSDS-T, M833	ea	1
0101-61	XBOOO	1315-01-146-3435	9349242	09781	CUSHION, WINDSHIELD: for cartridge, 105-MM, M833	ea	1
0101-62	XBOOO		12619468	19203	CONTAINER, AMMUNITION: 40-MM (SGT York) for Cartridges, 40-MM, M811, M813, M822, M851	ea	1
0101-63	XBOOO	8140-01-229-3823	12630717	19203	CONTAINER, AMMUNITION, METAL, PA116: for Cartridge, 120-MM, APFSDS-T, M829	ea	1
0101-64	XBOOO	8140-01-243-0480	12561277	19203	CONTAINER, AMMUNITION, METAL, PA119: for Cartridge, 120-MM, TPCSDS-T, M865	ea	1
0101-65	XBOOO	8140-01-228-7917	12630718	19203	CONTAINER, AMMUNITION, METAL, PA116: for Cartridge, 120-MM, HEAT-MP-T, M830	ea	1
0101-66	XBOOO	8140-01-245-3100	12561278	19203	CONTAINER, AMMUNITION, METAL, PA119: for Cartridge, 120-MM, TP-T, M831	ea	1
0101-67	XBOOO		12527240	19203	BOX, PACKING, AMMUNITION; for Cartridge, 120-MM, M831 and M865	ea	1
0101-68	XBOOO		12527220	19203	CONTAINER, AMMUNITION, FIBER, for Cartridges, 120-MM, M831 and M865	ea	1
					0102: PROJECTILE ASSEMBLY		
0102-1	PAHDD		73-1-311	19203	BURSTER, PROJECTILE, W/NOSE FUZE M24 for Cartridge, 90-MM, M313, WP	ea	1
0102-2	PAFZZ	1320-00-824-0811	8797090	19203	CHARGE, SUPPLEMENTARY ASSEMBLY (only for cartridges authorized)	ea	1
					0103: PROPULSION SYSTEM Not applicable		
					0104: FUZE		
0104-1	PAFDD	1390-00-935-1952	8798219	19203	FUZE, POINT DETONATING: M48A3, 0.05 Sec Delay, Packed as Required (only for cartridges authorized)	ea	1
0401-2	PAFDD	1390-00-892-4302	8863535	19203	FUZE, POINT DETONATING: M557, 0.05 Sec Delay, w/Booster M125A1, Packed 8/Mtl Bx, 2 Bx 16 Fuze/Wdnd Bx (only for cartridges authorized)	ea	1
					GROUP: 02 FIXED AMMUNITION (152 MM ONLY)		
					0201: CARTRIDGE (COMPLETE ROUND)		
0201-1	XBOOO	8140-00-828-3040	9212118	19203	BOX, PACKING, AMMUNITION: for Cartridges 152-MM, M409 Series and M411 Series	ea	1
0201-2	XBOOO	8140-00-828-3042	9212119	19203	CONTAINER, AMMUNITION: M556A1 for Cartridges, 152-MM, M409 Series and M411 Series	ea	1
0201-3	XBOOO	8140-00-922-5676	9224909	19203	BOX, PACKING, AMMUNITION: for Cartridges 152-MM, M625 Series and M657	ea	1
0201-4	XBOOO	8140-00-922-5673	9221407	19203	CONTAINER, AMMUNITION: M580A1 for Cartridge, 152-MM: M625 Series	ea	1
0201-5	XBOOO	8140-00-922-5675	9224908	19203	CONTAINER, AMMUNITION: PA 3 for Cartridge, 152-MM, M657 (XM 657E2)	ea	1
0201-6	XBOOO	8140-00-220-5201	9229158	19203	BOX, PACKING, AMMUNITION: for Dummy Cartridge 152-MM, M596	ea	1
					0202: PROJECTILE ASSEMBLY Not applicable		
					0203: PROPELLING SYSTEM Not applicable		
					0204: FUZE Not applicable		
					GROUP: 03 SEMIFIXED AMMUNITION (EXCEPT MORTAR)		
					0301: CARTRIDGE (COMPLETE ROUND)		
0301-1	XBOOO	8140-00-859-8016	7549077	19203	BOX, PACKING, AMMUNITION: for Cartridges, 105-MM, M1, M60, M84 Series, M314 Series M327, M360, M413, M444, XM629, M14	ea	1

See footnotes at end of this table.

(1) Item No.	(2) SMR code	(3) National stock No.	(4) Part No	(5) Fed supply code for mfg	(6) Description	(7) Unit of measure	(8) Quantity incorporated in unit
0301-2	XBOOO	8140-00-857-2985	7549073	19203	CONTAINER, AMMUNITION M105A3 for Cartridges, 105-MM, M1, M60, M84 Series, M314 Series M327, M360, M413, M444, XM629, M14	ea	1
0301-3	XBOOO	8140-00-089-8537	8862347	19203	BOX, PACKING, AMMUNITION for Cartridge, 105-MM XM546	ea	1
0301-4	XBOOO	8140-00-089-8536	8862348	19203	CONTAINER, AMMUNITION M431 for Cartridge 105-MM, XM546	ea	1
0301-5	XBOOO	8140-00-009-0033	9213637	19203	BOX, PACKING, AMMUNITION for Cartridge 105-MM, M548	ea	1
0301-6	XBOOO	8140-00-009-0037	9213636	19203	CONTAINER, AMMUNITION M547A1 for Cartridge, 105-MM, M548	ea	1
0301-7	XBOOO	8140-00-828-3079	7549254	19203	BOX, PACKING, AMMUNITION for Cartridge, 105-MM Blank, M395	ea	1
0301-8	XBOOO	8140-00-824-0813	7549255	19203	CONTAINER, AMMUNITION M34A1 for Cartridge 105-MM Blank, M395	ea	1
					0302 PROJECTILE ASSEMBLY		
0302-1	PAHZZ	1315-00-403-5603	9223129	19203	BURSTER, PROJECTILE M53A1, for Cartridge, 105-MM, Smoke, packed 50/Fbr Cntr, 1 Cntr/Barrier Bag, 2 Bag 100 Bursters/Wd Bx	ea	1
0302-2	PAHZZ	1315-00-459-7296	9223129	19203	BURSTER, PROJECTILE XM53, for Cartridges, 105-MM, Smoke, Packed 50/Fbr Cntr, 1 Cntr/Barrier Bag, 2 Bag, 100 Bursters/Wdn Bx	ea	1
0302-3	PAFZZ	1320-00-824-0811	8797090	19203	CHARGE, SUPPLEMENTARY ASSEMBLY (only for cartridges authorized)	ea	1
					0303 PROPELLING SYSTEM		
0303-1	PAFZL	1315-00-825-1384	9205472	19203	CHARGE, PROPELLING, 105 MILLIMETER M67, Dual gran, for Cartridges, 105-MM, (as authorized)	ea	1
0303-2	PAFZL	1315-00-926-4069	9212376	19203	CHARGE, PROPELLING XM176, for 2 Cartridges, 105-MM, HE, XM548E1	ea	1
					0304 FUZE		
0304-1	XBOOO	8140-00-040-7732	8864492	19203	BOX, PACKING, AMMUNITION Metal for Fuzes, M78, M524, M557, M572, M565, M501, M564, M577, M739, M732[a]	ea	1
0304-2	XBOOO	8140-00-864-3194	8861213	19203	BOX, PACKING, AMMUNITION for Fuzes, M78, M524, M557, M572, M565, M501, M564, M739, M732[a]	ea	1
0304-3	PAFDD	1390-00-892-4302	8863535	19203	FUZE, POINT DETONATING M557, 0.05 Sec Delay, w Booster M125A1, Pacaed 8/Mtl bx, 2 Bx 16 Fuze/Wrbnd Bx (only for cartridges authorized)	ea	1
0304-4	XBOOO	8140-00-149-0584	9204223	19203	SHIPPING AND STORAGE CONTAINER Fuzes, Proximity, M513, M514, M532[a]	ea	1
0304-5	XBOOO	8140-00-145-0052	8865546	19203	BOX, PACKING, AMMUNITION for Fuzes, Proximity M513, M514, M532[a]	ea	1
					GROUP 04 SEMIFIXED AMMUNITION (MORTAR ONLY)		
					0401 CARTRIDGES (COMPLETE ROUND)		
0401-1	XBOOO	8140-00-828-3068	9220015	19203	BOX, PACKING, AMMUNITION for Cartridges, 60-MM, M49 Series, M50A3	ea	1
0401-2	XBOOO	8140-00-828-3066	9220014	19203	CONTAINER, AMMUNITION M576 for Cartridges, 60-MM, M49 Series, M50A3	ea	1
0401-3	XBOOO	8140-00-009-0032	9242066	19203	BOX, PACKING, AMMUNITION for Cartridge, 60-MM, M83 Series	ea	1
0401-4	XBOOO	8140-00-009-0036	9242065	19203	CONTAINER, AMMUNITION PA44 for Cartridge, 60-MM, M83 Series	ea	1
0401-5	XBOOO	8140-00-220-5198	9215577	19203	BOX, PACKING, AMMUNITION for Cartridge, 60-MM, M302 Series	ea	1
6	XBOOO	8140-00-220-5199	9215576	19203	CONTAINER, AMMUNITION M567 for Cartridge 60-MM, M302 Series	ea	1
	XBOOO	8140-00-149-0585	9223900	19203	BOX, PACKING, AMMUNITION for Projectile, 60-MM, M69	ea	1

[a] footnotes at end of this table.

(1) Item No.	(2) SMR code	(3) National stock No.	(4) Part No.	(5) Fed supply code for mfg	(6) Description	(7) Unit of measure	(8) Quantity incorporated in unit
0401-8	XBOOO	8140-00-432-2190	7548995	19203	BOX, PACKING, AMMUNITION: for Cartridge, 81-MM, M57 Series	ea	1
0401-9	XBOOO	8140-00-824-0812	7548994	19203	CONTAINER, AMMUNITION: M37A5 for Cartridge, 81-MM, M57 Series	ea	1
0401-10	XBOOO	8140-00-857-2931	8858642	19203	BOX, PACKING, AMMUNITION: for Cartridges, HE, M43 Series and TP, M43A1	ea	1
0401-11	XBOOO	8140-00-827-0434	8858643	19203	CONTAINER, AMMUNITION: M36A5 for Cartridges, 81-MM, HE, M43 Series and TP, M43A1	ea	1
0401-12	XBOOO	8140-00-496-0468	9241849	19203	BOX, PACKING, AMMUNITION: for Cartridge, 81-MM, M301 Series	ea	1
0401-13	XBOOO	8140-00-496-0464	9241848	19203	CONTAINER, AMMUNITION: PA 43 for Cartridge, 81-MM, M301 Series	ea	1
0401-14	XBOOO	8140-00-426-0946	9230176	19203	BOX, PACKING, AMMUNITION: for Cartridges, 81-MM, M362 Series, M374 Series, M375 Series	ea	1
0401-15	XBOOO	8140-00-426-0962	9230175	19203	CONTAINER, AMMUNITION: M252A4 for Cartridges, 81-MM, M362 Series, M374 Series, M375 Series	ea	1
0401-16	XBOOO	8140-00-149-0582	7691562	19203	BOX, PACKING, AMMUNITION: for Projectile, 81-MM, M68	ea	1
0401-17	XBOOO	8140-00-861-2091	76-1-1188	19203	BOX, PACKING, AMMUNITION: for Cartridges, 4.2 Inch, M2 Series, Gas and Smoke	ea	1
0401-18	XBOOO	8140-00-859-7966	76-1-1189	19203	CONTAINER, AMMUNITION: M243 for Cartridges, 4.2 Inch, M2 Series, Gas and Smoke	ea	1
0401-19	XBOOO	8140-00-866-6534	7549248	19203	BOX, PACKING, AMMUNITION: for Cartridges 4.2 Inch, M3 Series, M328 Series, M329 Series, M335 Series and M630	ea	1
0401-20	XBOOO	8140-00-862-3146	7549247	19203	CONTAINER, AMMUNITION: M251A1 for Cartridges, 4.2 Inch, M3 Series, M328 Series, M329 Series, M335 Series and M630	ea	1
0401-21	XBOOO	8140-00-090-1102	9317918	19203	BOX, WIREBOUND, PACKING, AMMUNITION for cartridge, 60mm: HE M720	ea	1
0401-22	XBOOO	8140-00-090-1101	9252924	19303	BOX, PACKING, AMMUNITION: metal, for cartridge, 60mm: HE, M720	ea	1
0401-23	XBOOO	8140-00	9293286	19203	CONTAINER, AMMUNITION, FIBER: for cartridge, 60mm: HE, M720	ea	1
0401-24	XBOOO	8140-00	9329480	19203	BOX, PACKING, AMMUNITION: for sabot, 60mm practice, M3 and sabot 81mm practice, M1	ea	1
0401-25	XBOOO	8140-00	9322198	19203	TRAY, ASSEMBLY for cartridge, subcaliber, 22mm practice.	ea	1
0401-26	XBOOO	8140-00	9322201	19203	BOX, WIREBOUND, PACKING, AMMUNITION for cartridge, subcaliber, 22mm practice.	ea	1
					0402: PROJECTILE ASSEMBLY		
					Not applicable		
					0403: PROPULSION SYSTEM		
					Not applicable		
					0404: FUZE		
0404-1	XBOOO	8140-00-859-8018	8836934	19203	CONTAINER, AMMUNITION, FIBER: for Fuzes, PD, M525 Series and M527 Series (applicable only to 60- and 81-MM mortar ammunition)	ea	1

See footnotes at end of this table.

(1) Item No.	(2) SMR code	(3) National stock No.	(4) Part No.	(5) Federal supply code for mfg	(6) Description	(7) Unit of meas-ure	(8) Qty incor-porated in unit
0404-2	XBOOO	8140-00-861-2100	8835933	19203	BOX, PACKING, AMMUNITION: for Fuzes, PD, M525 Series and M527 Series (applicable only to 60- and 81-MM mortar ammunition).	ea	1
					GROUP: 05 SEPARATE-LOADING AMMUNITION		
					0501: PROJECTILE ASSEMBLY		
0501-1	XBOOO	8140-00-162-2003	8837839	19203	PALLET, PROJECTILE: for Projectiles 155-MM, M549A1, M483A1, M692, M718, M718A1, M731, M741, M741A1, and M825.	ea	1
0501-2	XBFFF	1320-00-844-6981	75-14-38-1H	19203	GASKET, SHELL: for Projectiles 155-MM, M116 and M118, 1.73 id, 2.38 od, 0.13 thk.	ea	1
0501-3	XBFFO	1320-00-861-2098	75-14-42-B19	19203	PLUG, LIFTING: for Projectiles 155-MM, M116 and M118.	ea	1
0501-4	XBOOO	8140-00-084-0349	76-18-28-1	19203	PALLET, BASE ASSEMBLY: for Projectile 155-MM, M118 Series.	ea	1
0501-5	PAHZZ	1320-00-492-8198	9223427	19203	BURSTER, PROJECTILE: M54, for Projectiles 155-MM, M100 Series.	ea	1
0501-6	XBOOO	8140-00-084-0377	7549275-3	19203	PALLET, BASE ASSEMBLY: for Projectile 155-MM, M107, M804, M110 Series, M116 Series, M121 Series, M485 Series.	ea	1
0501-7	XBOOO	8140-00-560-0463	7549275-4	19203	PALLET, COVER ASSEMBLY: for Projectile 155-MM, M107, M804, M110 Series, M116 Series, M121 Series, M485 Series.	ea	1
0501-8	XBOOO	8140-01-050-5809	9229038	19203	PALLET: for Projectile, 8 Inch, M509A1.	ea	1
0501-9	XBOOO	8140-00-149-0580	76-3-9	19203	CRATE, PACKING, AMMUNITION: for Dummy Projectile 155-MM, M7, and Dummy Projectile, 8 Inch, M14.	ea	1
0501-10	XBOOO	8140-00-144-9908	8857344	19203	PALLET BASE AND COVER: for Projectile, 175-MM, M437 Series.	ea	1
0501-11	XBOOO	8140-00-084-0405	76-18-161	19203	PALLET, BASE AND COVER ASSEMBLY: for Projectile 8 Inch, M106, M404, and M426.	ea	1
0501-12	XBOOO	8140-00-560-0464	76-18-162	19203	PALLET, COVER ASSEMBLY: for Projectiles, 8 Inch, M106, M404, and M426.	ea	1
0501-13	PAFZZ	1320-00-824-0811	8797090	19203	CHARGE, SUPPLEMENTARY ASSEMBLY: (only for projectiles authorized).	ea	1
0501-14	XBFFF	1320-00-077-2140	8860552	19203	GASKET, RUBBER: for Projectiles, 155-MM, 175-MM, and 8 Inch, 1.840 id, 2.190 od, and 0.125 thk.	ea ea	1 1
0501-15	XBFFO	1320-00-837-2907	10520074	19203	PLUG, LIFTING: for Projectiles 155-MM, 175-MM 8 Inch, and 155-MM, M116A1 (as authorized).	ea	1
0501-16	XBFFO	1320-00-495-0469	9215390	19203	PLUG, LIFTING: for Projectiles 155-MM: M449, M483A1, M692, M718, M731, M741, and 8 Inch: M404, M509A1.	ea	1
0501-17	XBOOO	8140-00-859-7972	10520044	19203	GROMMET: for Projectile 155-MM; HERA, M549/M549A1.	ea	1
0501-18	XBOOO	NO NSN	9235993	19203	ROCKET-OFF CAP: for Projectile, 155-MM: HERA, M549/M549A1.	ea	1
0501-19	XBOOO	NO NSN	9327882	19203	PALLET, BASE ASSEMBLY: for Projectile 155-MM, M549/M549A1.	ea	1
0501-20	XBOOO	NO NSN	9327881	19203	PALLET, COVER ASSEMBLY: for Projectile 155-MM, M549/M549A1.	ea	1
0501-21	XBFFO	1320-01-065-9830	9326791	19200	PLUG, LIFTING, PROTECTIVE: for Projectile 155-MM, M549/M549A1.	ea	1

See footnotes at end of this table.

(1) Item No.	(2) SMR code	(3) National stock No.	(4) Part No.	(5) Federal supply code for mfg	(6) Description	(7) Unit of measure	(8) Qty incorporated in unit
0501-22	XBOOO		928103	19203	PALLET Wood, Ammunition for Projectile, 8-Inch, HERA M650.	ea	1
0501-23	XBOOO		9270223	19203	GROMMET: For Projectile, 8-INCH, HERA, M650	ea	1
0501-24	XBOOO		9287960	19203	ROCKET OFF CAP for Projectile, 8-Inch, HERA, M650.	ea	1
0501-25		DELETED					
0501-26	XBOOO		9331805	19203	PALLET, COVER ASSEMBLY: for Projectile, 155mm, M804.	ea	1
0501-27	XBOOO		9331806	19203	PALLET, BASE ASSEMBLY: for Projectile, 155mm, M804.	ea	1
0501-28	XBOOO		9341620	19200	PALLET, BASE ASSEMBLY: for Projectile, 8-inch, XM844.	ea	1
0501-29	XBOOO		9341619	19200	PALLET, COVER ASSEMBLY: for Projectile, 8-inch, XM844.	ea	1
					0502 PROPELLING SYSTEM		
0502-1	XBOOO	8140-00-859-8017	8880528	19203	CONTAINER, AMMUNITION, M14A2 for Charge, Propelling ,155mm, M31 Series.	ea	1
0502-2	XBOOO	8140-00-864-3221	8880527	19203	CONTAINER, AMMUNITION M13A2 for Charge, Propelling, 155mm, M4 series.	ea	1
0502-3	XBOOO	8140-00-262-9365	9234357	19203	CONTAINER, AMMUNITION, METAL PA37A1 for Charge, Propelling, 155mm, M119, M119A1, M119A2.	ea	1
0502-4	XBOOO	8140-00-891-6162	8880532	19203	CONTAINER, AMMUNITION: M460A2 for Charge, Propelling, 175mm, M86, M98 and M124 Series.	ea	1
0502-5	XBOOO	8140-00-369-9118	8880530	19203	CONTAINER, AMMUNITION: M18A2 for Charge, Propelling, 8-Inch, M1.	ea	1
0502-6	XBOOO	8140-00-861-2104	8880531	19203	CONTAINER, AMMUNITION: M19A2 for Charges, Propelling, 8-inch, M2 and M4	ea	1
0502-7	XBOOO	8140-00-082-1709	9275945	19203	CONTAINER, AMMUNITION: PA66, for Charge, Propelling, 8-Inch, M188, M188A1	ea	1
0502-8	XBOOO	8140-00-258-8313	9211780	19203	CARTON, PACKING, AMMUNITION: FOR Additive, Jacket, M1 for Charge Propelling, 175mm, M86 Series.	ea	1
0502-9	XBOOO	8140-00-258-8311	9211781	19203	BOX, PACKING, AMMUNITION: for Additive, Jacket, M1 for Charge Propelling, M86 Series.	ea	1
0502-10	XBOOO	8140-00-149-0590	9226295	19203	BOX, WIREBOUND, PACKING, AMMUNITION: for Reducer, Flash Propelling Charge M2.	ea	1
0502-11	XBOOO	8140-00-149-0583	9226294	19203	CONTAINER, AMMUNITION, METAL: for Reducer, Flash, Propelling Charge, M2.	ea	1
0502-12	XBOOO	8140-00-262-1669	9212310	19203	BOX, PACKING, AMMUNITION: Fiberboard for Reducer, Flash,Propelling Charge XM5.	ea	1
0502-13	XBOOO	8140-00-262-1668	9212311	19203	BOX, PACKING, AMMUNITION: Wood for Reducer, Flash, Propelling Charge, XM5.	ea	1
0502-14	XBOOO	8140-00-827-6268	76-4-56-A	19203	SHIPPING AND STORAGE CONTAINER PROPELLANT POWDER: for Reducer, Flash, Propelling Charge, M3.	ea	1
0502-15	XBOOO	8140-00-262-1666	8796679	19203	BOX, PACKING, AMMUNITION: for Primer, Percussion, M82.	ea	1
0502-16	XBOOO	8140-00-262-1670	8796678	19203	BOX, PACKING, AMMUNITION: Fiberboard for Primer, Percussion M82.	ea	1
0502-17	XBOOO	8140-00-149-0581	8860560	19203	BOX, PACKING, AMMUNITION: for Primer, Percussion, MK2A4.	ea	1

See footnotes at end of this table.

(1) Item No.	(2) SMR code	(3) National stock No.	(4) Part No.	(5) Fed supply code for mfg	(6) Description	(7) Unit of measure	(Quantity
0502-18	XB000	8140-00-149-0589	8860559	19203	SHIPPING AND STORAGE CONTAINER, AMMUNITION: for Primer Percussion,MK2A4	ea	1
0502-19	XB000	....	9295043	19203	BOX, WIREBOUND, PACKING, AMMUNITION: for Spacer, Propelling Charge	ea	1
0502-20	XB000	8140-01-085-2707	9278205	19203	CONTAINER, AMMUNITION, METAL: PA68A1 Charge,Propelling, 155mm, M203	ea	1
0502-21	XB000	8140-01-204-4329	9349398	19200	CONTAINER, AMMUNITION, METAL: PA103, for Charge, Propelling, 155mm, M203A1	ea	1
					0503 FUZE Refer to Group 03-0304		
					0504 CONTAINER ASSEMBLY (Copperhead)		
0504-1	PAOZZ	6685-00-243-6628	9300445	19200	Card, Humidity Indicator	ea	1
0504-2	PAOZZ	4020-00-899-4787	T-R-605-TY-M CL2 Size 1.5		Rope	cl	1
0504-3	PADZZ	8140-01-181-1447	9301813	19200	Latch Assembly	ea	1
0504-4	PADZZ	9320-01-177-1455	9301807	19200	Cradle Pad, Cushioning	ea	1
0504-5	PADZZ	8140-01-177-8525	9301809	19200	Tail Stop, Tension	ea	1
0504-6	PADZZ	5330-01-178-8376	9301823	19200	Gasket	ea	1
0504-7	PADZZ	8140-01-177-8526	9301826	19200	Handle Adjustment	ea	1
0504-8	PADZZ	4820-01-121-1814	9301839	19200	Valve, Manual Relief	ea	1
0504-9	PAOZZ	7690-01-158-0532	9301834	19200	Marker, Identification	ea	1
0504-10	PAOZZ	6685-01-038-6868	9301821	19200	Indicator Assembly, Humidity	ea	1
0504-11	PADZZ	7690-01-158-0533	9301836	19200	Marker, Identification	ea	1
0504-12	PADZZ	8140-01-177-8527	9301833-1	19200	Liner, Cradle, Forward	ea	1
0504-13	PADZZ	8140-01-176-1452	9301833-2	19200	Liner, Cradle, Aft	ea	1

Footnotes:

1. Included in RPSTL for reference only. Burster M24 is replaceable but will not normally be replaced except for cannibalization due to limited us status of round.

2. Cataloging data for propelling charge XM172 used with 105-mm cartridge XM548E1 will be supplied at a later date.

3. Repair parts for packaging material for all fuzes applicable to separate-loading ammunition. Repair parts for packaging material with the exceptio of those applicable to M78 and M572 applicable to 4.2 Inch Mortar Ammunition.

4. Repair parts for packaging material for M514 fuze is REPAIR PARTS FOR PACKAGING MATERIAL FOR M513 and M532 fuzes are applicable to mortar ammunition.

Section III. SPECIAL TOOLS LIST

(1) Item	(2) SMR code	(3) National stock No.	(4) Part No.	(5) Fed supply code for mfg	(6) Description	(7) Unit of measure	(8) Quantity incorporated in unit
1	PAOZZ	5120-00-319-5434	8864731	19203	SALEE CLOSER[1]	ea	1
2	PAOZZ	3540-00-565-6242	Spec MIL-S-43104, Type III	81349	STRAPPING AND SEALING KIT: (5/8-Inch Strapping[4]	ea	1
3	PAOZZ	3540-00-565-6244	Spec MIL-S-41304, Type V	81349	STRAPPING AND SEALING KIT: 1-1/4 Inch Strapping.[1]	ea	1

See footnotes at end of this table.

Section III Special Tools List (continued)

(1) Item No.	(2) SMR code	(3) National stock No.	(4) Part No.	(5) Federal supply code for mfg	(6) Description	(7) Unit of measure	(8) Qty incorporated in unit
4	–	7920-00-900-3577	Gordon 15SS or equal	–	BRUSH: (Fuzewell) ¾ in. X 1-3/8 in.[2]	ea	1
5	–	8020-00-240-6361	H-B-118	81348	BRUSH, ARTISTS: flat chisel edge[1]	ea	1
6	–	8020-00-246-8504	H-B-118	81348	BRUSH, ARTISTS: round flat edge[2]	ea	1
7	–	8020-00-597-4768	H-B-351	81348	BRUSH, LACQUERING: 7/8 in. X 1 in.[2]	ea	1
8	–	8020-00-245-4522	H-B-391	81348	BRUSH, PAINT: flat, w/square edge, 2½ in. w. 5/16 in. thk, 2½ in. lg[2]	ea	1
9	–	8020-00-245-4516	H-B-420	81348	BRUSH, PAINT: grade A, 4 in. X 4-1/8 in.[2]	ea	1
10	–	8020-00-597-5301	H-B-491	81348	BRUSH, PAINT: oval style, chisel edge, 7/8 in. X 2-1/8 in.[2]	ea	1
11	–	7520-00-248-9285	H-B-621	81348	BRUSH, STENCIL: fountain type, 1-3/8 in. diameter, type F.[2]	ea	1
12	–	7520-00-223-8000	H-B-621	81348	BRUSH, STENCIL: long handle style: type L, 0.813 dia of bristles.[2]	ea	1
13	–	8020-00-889-7919	H-B-695	81348	BRUSH, VARNISH: 1½ in. X 13/32 in.[2]	ea	1
14	–	8020-00-205-6505	H-B-695	81348	BRUSH, VARNISH: fl, w/chisel edge, 1½ in. w, 11/16 in. thk, 2¼ in. lg class 1, grade A.[2]	ea	1
15	–	8020-00-262-9084	608-1	45092	BRUSH, VARNISH: fl, w/square edge, ½ in. w, ⅛ in. thk, 1¼ in. lg.[2]		
16	–	7920-00-255-5153	H-B-178	81348	BRUSH, WIRE SCRATCH: wood and copper beryllium alloy, curved handle, 14 in. X 15/16 in. block, 6 in. X 1¼ in. wire brush[2].	ea	1
17	–	7920-00-269-0933	H-B-178	81348	BRUSH, WIRE SCRATCH: wood and copper beryllium alloy, straight handle, 7-in. X 1 in. block, 6-in. X 1¼ in. wire brush.[2]	ea	1
18	PAFZZ	8140-00-337-9853	9287465	19203	CONTAINER: shipping and storage (for gages)[1,4]	ea	1

See footnotes at end of this table.

(1) Item No.	(2) SMR code	(3) National stock No.	(4) Part No.	(5) Fed supply code for mfg	(6) Description	(7) Unit of measure	(8) Quantity incorporated in unit
19	PAFZZ	5220-00-395-4486	7304555	19203	GAGE, RING, PLAIN: Rockwell C63 to C66, 4,1328 ± .0006 dia, 0.125 chamfer ends, 15 degree angle, for Projectile, 105-MM, M1, M67, M60, M1 Series M444.[4]	ea	1
20	PAFZZ	5220-00-395-4459	7256913	19203	GAGE, RING, PLAIN: Rockwell C63 to C66, 7.9980 ± .0005 dia, 0.125 chamfer both ends, 15 degree angle, designed for use on 8-inch HE shell, M106, Mk1A1[4]	ea	1
21	PAFZZ	5220-00-395-4464	7257860	19203	GO PLAIN RING GAGE: Tool Steel, Rockwell C63 to C66, 3.5400 ± .0005 dia, 0.047 chamfer both ends, 15 degree angle, designed for use on 90-mm shells, smoke, WP, M313, HEAT T108E15.[4]	ea	1
22	PAFZZ	5220-00-395-4487	7304558	19203	GO PLAIN RING GAGE: Tool Steel, Rockwell C63 to C66, 6.0984 ± .0005 dia, 0.125 chamfer both ends, 15 degree angles, for use on 155-MM shell.[2]	ea	1
23	PAFZZ	5220-00-261-9302	880210	19203	GO PLAIN RING GAGE: Tool Steel, Rockwell C63 to C66, 7.8924 ± .0006 dia, 0.1250 chamfer both ends, 15 degree angle, designed for use on 8-inch shell, M103, M426, M106.	ea	1
24	PAFZZ	5220-00-258-8318	9201580	19203	GO RING GAGE: Tool Steel, Rockwell C63 to C66, 5.9950 ± .0008 dia, 0.125 chamfer both ends, 15 degree angle, designed for use on Cartridge 152-MM M625A1, XM617, M411 Series, M409A1.[4]	ea	1
25	PAFZZ	5220-00-933-8099	8816137	19203	GO RING GAGE: Tool Steel, Rockwell C63 to C66, 6.8890 ± .0006 dia, 0.125 chamfer both ends, 15 degree angle, designed for projectile 175-mm, M437 series.[4]	ea	1
26	PAFZZ	7520-00-049-7993	53M45750	21450	MARKING OUTFIT: Rubber Solid Gothic Type ¼, ½, ¾, 1-Inch Letters.[1,5]	ea	1
27	—	4240-00-022-2524	GGG-M125	81348	RESPIRATOR, AIR FILTERING: Paint Spray, M6.[2]	ea	1
28	—	5120-00-189-7917	GGG-W641	81348	SOCKET, SOCKET WRENCH: Sq Drive, ½-in. Drive Size, 12 Pt Opening 1¼ in. type II, class II, style A.[1]	ea	1
29	PAOZZ	4933-00-723-1161	7231161	19206	WRENCH, FUZE: M18[2]	ea	1
30	—	5120-00-221-7947	GGG-W-686	81348	WRENCH, TORQUE: Deflecting Frame End Drive Style, w/visual pl indicating torque mech, ½ in. male sq-drive, 600 inch-lb capactiy, type I, class I, style A[1]	ea	1
31	PAFZZ		APE 1263	19203	FIXTURE, TORQUING: fuze booster (used as fuze to torque wrench adapter)		
32	—	5120-00-278-0352	—	—	PLIERS: Slip-joint	—	—
33	—	5120-00-198-5407	—	—	KEY: Socket Head Screw, ½ in.	—	—

Footnotes:

[1] *Item is listed in SC 4925-95-CL-A03 for general support maintenance. It is currently being processed for inclusion in SC 4940-95-CL-A11 for direct support maintenance.*

[2] *Item is currently being processed for inclusion in SC 4940-95-CL-A11 for direct support and SC 4925-95-CL-A03 for general support maintenance.*

[3] *Cataloging data will be supplied when available.*

[4] *Item is currently being processed for inclusion in SC 4925-95-CL-A03 for General Support Maintenance.*

[5] *1/8" rubber type is currently being processed for inclusion in this outfit.*

Section IV. NATIONAL STOCK NUMBER AND PART NUMBER INDEX

National stock No.	Part No.	Federal supply code for mfg.	Item No.
1315-00-403-5603	9223129	19203	0302-1
1315-00-459-7295	9223129	19203	0302-2
1315-00-825-1384	9205472	19203	0303-1
1320-00-077-2140	8860552	19203	0501-14
1320-00-492-8198	9223427	19203	0501-5
1320-00-495-0469	9215390	19203	0501-16
1320-00-824-0811	879090	19203	0302-3 0501-13 0102-2
1320-00-837-2907	10520074	19203	0501-15
1320-00-844-6981	75-14-381H	19203	0501-2
1320-00-861-2098	75-14-42B	19203	0501-3
1390-00-892-4302	8863535	19203	0304-3
1390-00-892-4302	8863535	19203	0104-2
1390-00-935-1952	8798219	19203	0104-1
3540-00-565-6242	Spec MIL-S-43104 Type III	81349	2
3540-00-565-6244	Spec MIL-S-43104 Type V	81349	3
4240-00-022-2524	GGG-M-125	81348	27
	APE 1263	19203	31
4933-00-723-1161	7231161	19206	29
5120-00-189-7917	GGG-W-641	81348	28
5120-00-221-7947	GGG-W-686	81348	30
5120-00-319-5434	8864731	19203	1
5220-00-258-8318	9201580	19203	24
5220-00-261-9802	8802210	19203	23
5220-00-395-4459	7256913	19203	20
5220-00-395-4464	7257860	19203	21
5220-00-395-4486	7304555	19203	19
5220-00-395-4487	7304558	19203	22
5220-00-933-8099	8816137	19203	25
7520-00-049-7993	53M34750	21450	26
7520-00-223-8000	H-B-621	81348	12
7520-00-248-9285	H-B-621	81348	11
7920-00-255-5135	H-B-178	81348	16
7920-00-269-0933	H-B-178	81348	17
7920-00-900-3577	Gordon 15SS or equal	--	4
8020-00-205-6505	H-B-695	81348	14
8020-00-240-6361	H-B-118	81348	5
8020-00-245-4516	H-B-420	81348	9
8020-00-245-4522	H-B-391	81348	8
8020-00-246-8504	H-B-118	81348	6
8020-00-262-9084	608-1	45092	15
8020-00-597-4768	H-B-351	81348	7
8020-00-597-5301	H-B-491	81348	10
8020-00-889-7919	H-B-695	81348	13
8140-00-008-3194	9251995	19203	0101-8
8140-00-008-3195	9251996	19203	0101-7
8140-00-009-0031	76-1-1236	19203	0101-13
8140-00-009-0032	924066	19203	0401-3
8140-00-009-0033	9213637	19203	0301-5
8140-00-009-0035	9242065	19203	0401-4
8140-00-009-0037	9213636	19203	0301-6
8140-00-010-6236	8798641	19203	0101-21
8140-00-040-7732	8864492	19203	0304-1
8140-00-084-0349	76-18-28-1	19203	0501-4
8140-00-084-0377	7549275-3	19203	0501-6
8140-00-084-0405	76-18-16-1	19203	0501-11
8140-00-089-8535	9215119	19203	0101-20

National stock No.	Part No.	Federal Supply code for mfg.	Item No.
8140-00-089-8536	8862348	19203	0301-4
8140-00-089-8537	8862347	19203	0301-3
8140-00-089-8666	9213661	19203	0101-15
8140-00-089-8668	9213611	19203	0101-34
8140-00-089-8670	9213612	19203	0101-33
8140-00-089-8677	9212553	19203	0101-47
8140-00-089-8678	9212554	19203	0101-46
8140-00-090-1101	9252924	19203	0401-22
8140-00-090-1102	9317918	19203	0401-21
	9293286	19203	0401-23
	9329480	19203	0401-24
	9322198	19203	0401-25
	9322201	19203	0401-28
	9321286	19203	0101-57
	9321291	19203	0101-56
	9345252	09871	0101-60
	9347384	09871	0101-59
	9347387	09871	0101-58
8140-00-144-9823	76-1-1105	19203	0104-14
8140-00-144-9908	8857344	19203	0501-10
8140-00-145-0052	8865546	19203	0304-5
8140-00-149-0580	76-3-9	19203	0501-9
8140-00-149-0581	8860560	19203	0502-17
8140-00-149-0582	7691562	19203	0401-16
8140-00-149-0583	9226294	19203	0502-11
8140-00-149-0584	9204223	19203	0304-4
8140-00-149-0585	9223900	19203	0401-7
8140-00-149-0588	7549250	19203	0101-36
8140-00-149-0589	8860559	19203	0502-18
8140-00-149-0590	9226295	19203	0502-10
8140-00-162-2003	8837839	19203	0501-1
8140-00-162-2005	9209204	19203	0101-10
8140-00-184-8239	76-1-1237	19203	0101-29
8140-00-184-8252	8887601	19203	0101-26
8140-00-184-8259	9209205	19203	0101-9
8140-00-184-8294	9215118	19203	0101-19
8140-00-184-8355	8887602	19203	0101-25
8140-00-184-8357	76-1-1106	19203	0101-30
8140-00-200-4260	5581378	19200	0101-6
8140-00-220-5198	9215577	19203	0401-5
8140-00-220-5199	9215576	19203	0401-6
8140-00-220-5201	9229158	19203	0201-6
8140-00-258-8311	9211781	19203	0502-9
8140-00-258-8312	9278416	19203	0101-41
8140-00-258-8313	9211780	19203	0502-8
8140-00-262-1666	8796679	19203	0502-15
8140-00-262-1668	9212311	19203	0502-13
8140-00-262-1669	9212310	19203	0502-12
8140-00-262-1670	8796678	19203	0502-16
8140-00-262-9365	9234357	19203	0502-3
8140-00-337-9853	9287465	19203	0502-18
8140-00-369-9118	8880530	19203	0502-5
8140-00-403-5605	8796464	19203	0101-1
8140-00-426-0946	9230176	19203	0401-14
8140-00-426-0959	9230175	19203	0401-15
8140-00-426-0983	7549070	19203	0101-50
8140-00-432-2190	7548995	19203	0401-8
8140-00-495-0464	9241848	19203	0401-13
8140-00-495-0468	9241849	19203	0401-12
8140-00-560-0463	7549275-4	19203	0501-7
8140-00-560-0464	76-18-16-2	19203	0501-12
8140-00-824-0812	7548994	19203	0401-9
8140-00-824-0813	7549255	19203	0301-8
8140-00-824-0814	8796717	19203	0101-32
8140-00-824-0815	8800078	19203	0101-28
8140-00-824-0821	7548962	19203	0101-49
8140-00-825-1361	8835105	19203	0101-4
8140-00-825-1362	8835104	19203	0101-3

National stock No.	Part No.	Federal Supply code for mfg.	Item No.
8140-00-826-5424	9213660	19203	0101-16
8140-00-827-0434	8858643	19203	0401-11
8140-00-827-0476	7549071	19203	0101-51
8140-00-827-0519	75392-49	19203	0101-35
8140-00-827-6231	76-1112	19203	0101-2
8140-00-827-6234	7649268	19203	0101-11
8140-00-827-6268	76-4-56	19203	0502-14
8140-00-827-6344	7649269	19203	0101-12
8140-00-827-6345	8796482	19203	0101-52
8140-00-828-2938	7553315	19200	0101-5
8140-00-828-3040	9212118	19203	0201-1
8140-00-828-3042	9212119	19203	0201-2
8140-00-828-3006	9220014	19203	0401-2
8140-00-828-3068	9220015	19203	0401-1
8140-00-828-3077	7548963	19203	0101-48
8140-00-828-3079	7549254	19203	0301-7
8140-00-828-7404	8800077	19203	0101-27
8140-00-831-0096	8796483	19203	0101-53
8140-00-854-6801	7548476	19203	0101-17
8140-00-855-5961	9204454	19203	0101-37
8140-00-855-5987	9204453	19203	0101-38
8140-00-857-2931	8858642	19203	0401-10
8140-00-857-2938	8836004	19203	0101-44
8140-00-857-2981	8835039	19203	0101-39
8140-00-857-2985	7549073	19203	0301-2
8140-00-857-2990	8835040	19203	0101-40
8140-00-857-2991	8836005	19203	0101-45
8140-00-857-2994	8837831	19203	0101-42
8140-00-857-3005	8837832	19203	0101-43
8140-00-857-3020	7548467	19203	0101-18
8140-00-857-3021	7548301	19203	0101-24
8140-00-857-3023	7548306	19203	0101-23
8140-00-859-7966	76-1-1189	19203	0401-18
8140-00-859-7972	10520044	19203	0501-17
	9235993	19203	0501-18
	9327882	19203	0501-19
	9327881	19203	0501-20
	9326791	19203	0501-21
	9280103	19203	0501-22
	9270723	19203	0501-23
	9287960	19203	0501-24
	9278205	19203	0502-4
8140-00-859-8015	8796716	19203	0101-31
8140-00-859-8016	7549072	19203	0301-1
8140-00-859-8017	8880528	19203	0502-1
8140-00-859-8018	8835934	19203	0404-1
8140-00-861-2091	76-1-1188	19203	0401-17
8140-00-861-2100	8835933	19203	0404-2
8140-00-861-2104	8880531	19203	0502-6
8140-00-862-3146	7549247	19203	0401-20
8140-00-864-3194	8861213	19203	0304-2
8140-00-844-3221	8880527	19203	0502-2
8140-00-866-6534	7549248	19203	0401-19
8140-00-890-7593	8798640	19203	0101-22
8140-00-891-6162	8880532	19203	0502-4
8140-00-922-5673	9221407	19203	0201-4
8140-00-922-5675	9224908	19203	0201-5
8140-00-922-5676	9224909	19203	0201-3
	73-1-211	19203	0102-1
	9212377	19203	0303-2
	9275845	19203	0502-7
	9229038	19203	0501-25
	9331805	19203	0501-26
	9331806	19203	0501-27
	9229038	19203	0501-8
	9295043	19203	0502-19

National stock No.	Part No.	Federal Supply code for mfg.	Item No
8140-01-050-5809	9229038	19203	0501-8
	9295043	19203	0502-19
8140-01-204-4329	9349398	19200	0502-21

APPENDIX C
EXPENDABLE SUPPLIES

Section I. INTRODUCTION

C-1. Scope

a. This appendix lists expendable items which are required for direct and general support maintenance.

b. Expendable supplies shall be requisitioned through normal supply channels to comply with maintenance requirements.

C-2. Explanation of Columns

a. National Stock No. Column 1 indicates the National stock number assigned to the item and shall be used for requisitioning purposes.

b. Description. Column 2 indicates the item name and brief description to identify the item.

c. Specification No. Column 3 indicates the specification which controls the design or characteristics of the item.

d. Unit of Issue. Column 4 indicates the unit of issue of each item.

Section II. EXPENDABLE SUPPLIES

(1) National stock No.	(2) Description	(3) Specification No.	(4) Unit of Issue
6810-00-184-4796	Acetone, Technical: 5 Gal	O-A-51	cn
6810-00-543-7415	Alcohol, Denatured; grade III	O-E-760	gl
8135-00-282-0565	Barrier Mateial, Watervapor proofed, Flexible: 200-yd roll, 36 in. wide, class 1	MIL-B-131	ro
8520-00-782-3509	Hand Cleaner, class 2 paste grade A.	P-H-0031	gl
8030-00-664-7105	Coating Compound, Bituminous solvent Type: type I	MIL-C-450C	gl
8030-00-290-5141	Coating Compound, Bituminous Solvent Type: type II	MIL-C-450, Type 2	gl
6850-00-174-9672	Corrosion, Removing Compound	MIL-C-10578	gl
7930-00-249-8036	Detergent, General Purpose	P-D-220	co
	Enamels:		
8010-00-297-0809	Red, No. 31136	TT-E-515	gl
8010-00-598-5465	Brown, No. 30117	TT-E-527	gl
8010-00-598-5939	Dark Green, No. 34108	TT-E-515	gl
8010-00-910-8154	Black, No. 37038	TT-E-516	pt
8010-00-848-9272	Olive Drab, lusterless, spray can No. 34087	TT-E-516	pt
8010-00-878-5761	White, No. 37875, spray canf	TT-E-516	pt
8010-00-851-5525	Yellow, semi-gloss No. 33538	MIL-E-16663	pt
8010-00-297-2122	Black, No. 37038	TT-E-516	gl
8010-00-297-2119	Blue, No. 35109	TT-E-516	gl
8010-00-828-3193	Green, No. 34558	TT-E-516	gl
8010-00-297-2116	Olive Drab, No. 34087	TT-E-516	gl
8010-00-844-0870	Orange, No. 32246, spray can	TT-E-515	pt
8010-00-297-0563	Orange No. 35524-13	TT-E-527	gl
8010-00-297-2112	Yellow, No. 33538	TT-E-516	gl
8010-00-297-2111	White, No. 37875	TT-E-516	gl
8010-00-067-5436	Lacquer: Alkyd cellulose, fullgloss, spray can	TT-E-488	pt
5315-00-597-9766	Fastener, Corrugated, Wood Joint: steel 1/2 in. sawtooth	FF-F-133	hd
8415-00-682-6786	Gloves, disposable: plastic	96717	pr
9150-00-190-0904	Grease: automotive and artillery	MIL-G-10924	lb
7510-00-161-0811	Ink Marking Stencil: black	TT-I-1795	qt
7510-00-161-0813	Ink Marking Stencil: black	TT-I-1795, type II	qt
7510-00-161-0815	Ink Marking Stencil: white	TT-I-1795	gl
7510-00-161-0816	Ink Marking Stencil: yellow	TT-I-1795	gl
8135-00-160-7757	Paper, Kraft: untreated, chemical treatment unbleached	UU-P-268	ro

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See footnote at end of table.

(1) National stock No.	(2) Description	(3) Specification No.	(4) Unit of Issue
8010-00-527-3196	Lacquer: brown, No. 30277	TT-L-40	gl
8010-00-161-7392	Lacquer: brown, 5 gal, No. 30277	TT-L-40	cn
8010-00-584-3148	Lacquer: orange, No. 12197, spray can	TT-L-50	pt
9150-00-231-6689	Lubricating Oil, General Purpose	VV-L-800	pt
7520-00-973-1059	Marker, Tube Type: black	GG-M-00114	ea
7520-00-973-1062	Marker, Tube Type: red	GG-M-00114	ea
7520-00-079-0288	Marker, Tube Type: yellow	GG-M-00114	ea
5315-00-889-2743	Nail, steel head style 19, 1.5 in.	FF-N-105	pk
5315-00-889-2744	Nail, steel 6d, 2 in.	FF-N-105	pk
5315-00-889-2745	Nail, steel 8d, 2.5 in.	FF-N-105	lb
5350-00-271-7935	Paper, Abrasive, Flint: 120-150-gru!	P-P-105	pk
8010-00-515-2208	Primer, Coating: zinc yellow	TT-P-1757	gl
7920-00-205-1711	Rag, Wiping: cotton, unbleached, mixed colors	DDD-R-30 grade B	be
5330-00-729-5103	Rubber, Sheet, Solid: 1/8 in. thk, 36 w	MIL-G-1149	ea
5340-00-598-3442	Seal, Antipilferage, Metallic: 0.5 in. dia, 1/8 in. thk	M361938-2	hd
8135-00-239-5291	Seal, Strapping: 2n threated for 5/8 in. steel strapping	QQ-S-781	hd
8135-00-239-5294	Seal, Strapping: steel, 2n treated for 1-1/4 in. steel strapping	QQ-S-781	bx
8030-00-245-7032	Sealing Compound, type A	JAN-C-99	gl
9310-00-240-4737	Stencilboard: oiled, 18-1/2 in. x 18-1/2 in.	UU-S-625	pg
8135-00-281-4071	Strapping: steel, 5/8 in. w., nailess	QQ-S-781	cl
8135-00-283-0671	Strapping: steel, 1-1/4 in. w., 0.035 in. thk	QQ-S-781	cl
7510-00-266-6711	Tape, Pressure Sensitive Adhesive: (masking) 3/4 in. w, 2160 in. roll	UU-T-106	ro
7510-00-266-6712	Tape, Pressure Sensitive Adhesive: (masking) 1 in. w, 2160 in. roll	PPP-T-42	ro
7510-00-266-6710	Tape, Pressure, Sensitive Adhesive: (masking) 2 in. w, 2160 in. roll	PPP-T-42	ro
8135-00-266-6715	Tape, Pressure Sensitive Adhesive: 2 in. w, clear, 60 in. long	PPP-T-60	ro
8010-00-242-2089	Thinner, Paint, Mineral Spirits	TT-T-291	gl
8010-00-160-5794	Thinner, Synthetic Resin Enamel	TT-T-306	gl
6810-00-664-0388	1,1,1—Trichlorethane, Technical: 5 gal	O-T-620	cn
8010-00-221-2808	Varnish, Oil	MIL-V-13750	gl
9505-00-294-7373	Wire, nonelectrical: round, steel, zinc coated, 0.0363 in., dia, medium temper, 5 lb. coil	QQ-W-461	cl
5350-00-255-7736	Wool, Metallic: copper	FF-W-1825	lb
5350-00-242-4405	Wool, Metallic: steel	FF-S-740	ro
5975-00-296-5324	ROD, GROUND: steel; copper-covered, 5/8 in. dia, 8-ft lg	W-R-550	ea
5999-00-501-8369	CLIP, ELECTRICAL: battery clip	W-C-440	ea
6145-00-990-2999	WIRE, ELECTRICAL: black, single stranded wire, electrical	J-C-30	ft
5350-00-192-5051	Cloth, Abrasive, 180 grit	P-C-451	pg
5350-00-192-9316	Cloth, Abrasive, 220 grit	P-C-451	pg
5350-00-246-0330	Cloth, Abrasive, 320 grit	P-C-Z451	pg
6850-00-264-6573	Desicant, 2-unit bag	MIL-D-3464, type I	cn
6810-00-753-4993	Alcohol, Isopropyl, 8 oz	TT-I-735, grade A	cn
8010-00-297-2122	Enamel, Black, No. 37038	TT-E-516	gl
8010-00-285-4933	Paint, Stencil, White, No. 37875	TT-P-98	gi
8010-00-285-4935	Paint, Stencil, Yellow, No. 33538	TT-P-98	qt
8030-00-231-2345	Corrosion Preventive Compound, Grade 2	MIL-C-16173	gl
8010-00-721-9752	Enamel. Bronz, No. 17043.	TT-E-516	gl
8010-00-159-4513	Latex, Black, No. 27038	MIL-P-9503	gl
8135-00-239-5288	Seal, Strapping, for 3/4 in. steel strapping, type D, Cl.H, style I, II, or IV	QQ-S-781	bx
8135-00-281-4069	Strapping, Steel: 3/4 in. 0.031 or 0.035 in. thk., cl. I, type I or IV, fin B, gr. 2	QQ-S-781	cl
	Staple, Strap	FF-N-105	bx
8010-00-721-9752	Lacquer, Gold, No. 17043, Spray, 16 oz	TT-L-50	cn
8010-00-515-2487	Lacquer, Clear, Spray, 16 oz	TT-L-50	cn
8010-00-848-6424	Enamel, Yellow, No. 33538	TT-E-516	qt
8010-00-087-0107	Enamel, White, No. 27875	TT-E-529	qt
8010-00-285-4917	Paint, Stencil, Black, No. 37038	TT-P-98	qt
8010-00-181-7318	Enamel, Metal, Olive Drab, Semi-gloss Alkyd, No. 37308	MIL-E-46136, type I	qt
6850-00-935-9794	Desiccant, Activated, 8-unit bag, 240 bags/drum	MIL-D-3464, type II	dr
8010-00-068-8779	Lacquer, Forest Green, No. 34079	MIL-L-81352	gl
4020-00-033-7695	Tape	MIL-T-43435, type 2, size 2, finish B	ro

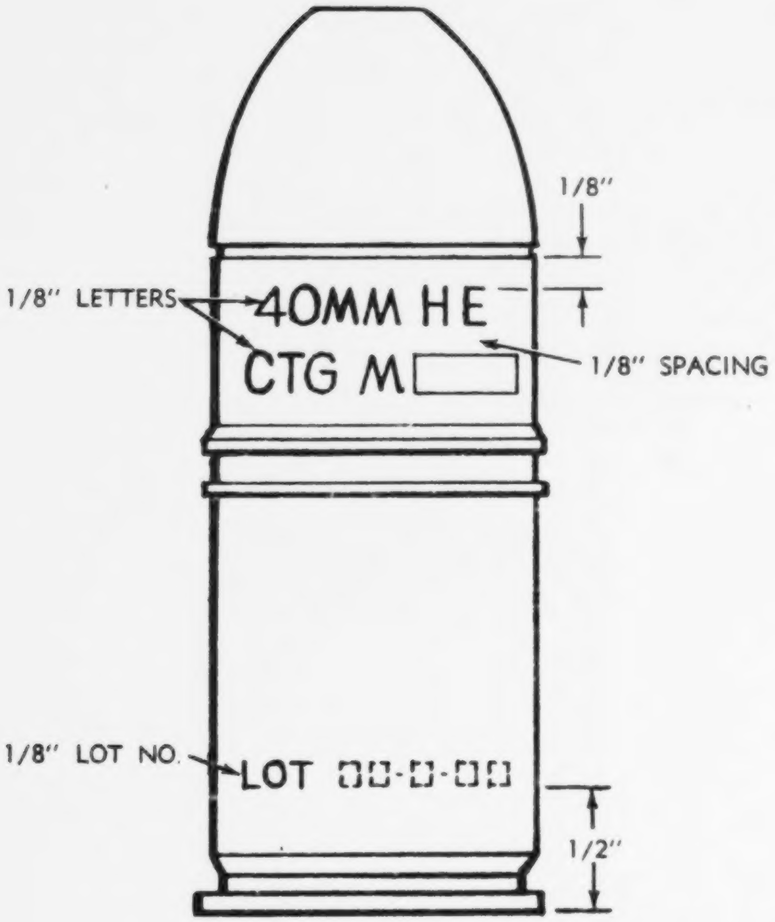
Cataloging action is presently in process to record activities BA and BL in Defense Logistics Services Center Master Item Data File.

APPENDIX D

MARKING FOR CARTRIDGES AND PROJECTILES

Fig.	Title	AR No.
D-1	Typical marking for 40-mm grenade cartridges M381, M382, M386, M406, M407 and M441 Series.	AR 100024
D-2	Typical marking for 40-mm grenade cartridge M433.	AR 100025
D-3	Typical marking for 40-mm grenade cartridge M651.	AR 100026
D-4	Typical marking for 40-mm grenade cartridge M585.	AR 101632
D-5	Typical marking for 40-mm grenade cartridges M583A1, M661 and M662.	AR 101633
D-6	Typical marking for 40-mm grenade cartridges M713, M715 and M716.	AR 101634
D-7	Typical marking for 40-mm grenade cartridge M576.	AR 101635
D-8	Typical marking for 40-mm grenade cartridges M674 and M675.	AR 100029
D-9	Typical marking for 40-mm grenade cartridges M383, M384 and M684.	AR 100030
D-10	Typical marking for 40-mm grenade cartridge M430.	AR 100031
D-10.1	Typical marking for 40-mm grenade cartridge M918.	ARD 2665
D-11	Typical marking for 40-mm grenade cartridge M385.	AR 100032
D-12	Typical marking for 40-mm cartridge M81A1.	AR 100033
D-13	Typical marking for 40-mm gun cartridges Mk2, M25 and M91.	AR 100034
D-13.1	Typical markings for 40-mm gun cartridges M811, M813, M822 and M851 (SGT York)	ARD 84-1609
D-14	Typical marking for 60-mm mortar cartridges M302 series.	AR 100035
D-15	Typical marking for 60-mm mortar cartridges M83 series.	AR 100036
D-16	Typical marking for 60-mm mortar cartridges M49 series, M50 series and M720.	AR 100037
D-17	Typical marking for 81-mm mortar cartridges M632 series, M370 and M445.	AR 100038
D-18	Typical marking for 81-mm mortar cartridges M374 series and M375 series.	AR 100039
D-19	Typical marking for 81-mm mortar cartridges M301 series.	AR 100040
D-20	Typical marking for 81-mm mortar cartridges M57 series.	AR 100041
D-21	Typical marking for 81-mm mortar cartridges M23 series (HE and TP).	AR 100042
D-21.1	Typical marking for 84-mm launcher cartridge, M136 (AT4)	ARD 2805
D-22	Typical marking for 90-mm gun cartridge M580.	AR 100043
D-23	Typical marking for 90-mm gun cartridge M77, M318 and M353 series.	AR 100044
D-24	Typical marking for 90-mm gun cartridge M332A1.	AR 100045
D-25	Typical marking for 90-mm gun cartridge M313 series.	AR 100046
D-26	Typical marking for 90-mm gun cartridge M71 series.	AR 100047
D-27	Typical marking for 90-mm gun cartridge M82.	AR 100048
D-28	Typical marking for 90-mm gun cartidge M648A1.	AR 100049
D-29	Typical marking for 90-mm gun cartridge M431 series.	AR 100050
D-30	Typical marking for 90-mm gun cartridges M336 and M377.	AR 100051
D-31	Typical marking for cartridge case on 90-mm gun cartridge M431A2.	AR 100052
D-32	Typical markings for case on 90-mm rifle cartridge M371A1.	AR 100053
D-33	Typical marking for 90-mm rifle cartridge M590.	AR 100054
D-34	Typical marking for 90-mm rifle cartridge M371 series.	AR 100055
D-35	Typical marking for cartridge case on 105-mm howitzer round M1	AR 100056
D-36	Typical marking for projectile of 105-mm howitzer cartridge M629	AR 100057
D-37	Typical marking for projectile of 105-mm howitzer cartridge M546.	AR 100058
D-38	Typical marking for projectile of 105-mm howitzer cartridge M327.	AR 100059
D-39	Typical marking for projectile of 105-mm howitzer cartridge M60 series and M84 series.	AR 100061
D-40	Typical markings for projectiles of 105-mm howitzer cartridges M1, M67, M413 and M444	AR 100062
D-41	Typical marking for projectiles of 105-mm howitzer cartridge M314 series.	AR 100063
D-42	Typical marking for projectile of 105-mm howitzer cartridge M548.	AR 100064
D-42.1	Typical marking for 105-mm gun cartridge, DM128	ARD-2769
D-43	Typical marking for 105-mm gun cartridge XM494E3.	AR 100065
D-44	Typical marking for 105-mm gun cartridges M393 series, M416 and M417	AR 100066
D-45	Typical marking for 105-mm gun cartridges M392 series and M724 series.	AR 100067
D-46	Typical marking for 105-mm gun cartridges M774, M735 and M833	ARD 82-0327A
D-47	Typical marking for 105-mm gun cartridges M456 series and M490 series.	AR 100068
D-48	Typical marking for cartridge case on 105-mm gun cartridge M456 series.	AR 100069
D-49	Typical marking for 4.2 in. mortar cartridges M2, M630 and M328A1.	AR 100070
D-50	Typical marking for 4.2 in. mortar cartridges M3 series, M329 series and M335A2.	AR 100072
D-51	Typical marking for cartridge case on 106-mm rifle cartridge M581.	AR 100073
D-52	Typical marking for 106-mm rifle cartridge M346A1.	AR 100074
D-53	Typical marking for 106-mm rifle cartridge M344A1.	AR 100075

Fig.	Title	AR No.
D-54	Typical marking for 106-mm rifle cartridge M581.	AR 100076
D-54.1	Typical marking for 120-mm gun cartridges M829 and M865.	ARD 81-0042-F
D-54.2	Typical marking for 120-mm gun cartridge M830.	ARD -2772
D-54.3	Typical marking for 120-mm gun cartridge M831.	ARD 81-0045-C
D-55	Typical marking for 152-mm cartridges M409 series and M411 series.	AR 100077
D-56	Typical marking for 152-mm gun cartridge M657.	AR 100078
D-57	Typical marking for 152-mm gun cartridge M625.	AR 100079
D-58	Typical marking for 155-mm howitzer projectiles M107, M110 series and M116 series.	AR 100080
D-58.1	Typical marking for 155-mm howitzer projectile M804.	ARD 81-0043
D-59	Typical marking for 155-mm howitzer projectile M449A1.	AR 100081
D-60	Typical marking for 155-mm howitzer projectile M549.	AR 101577
D-61	Typical marking for 155-mm howitzer projectile M118 series and M485 series.	AR 100083
D-62	Typical marking for 155-mm howitzer projectile M483A1.	AR 101636A
D-62.1	Typical marking for 155-mm howitzer projectile M687	ARD-2773
D-63	Typical marking for 155-mm howitzer projectile M692.	AR 101637
D-64	Typical marking for 155-mm howitzer projectile M731.	AR 101638
D-65	Typical marking for 155-mm howitzer projectile M718.	ARD 80-0161
D-65.1	Typical marking for 155-mm howitzer projectile M741.	ARD 80-0162
D-65.2	Typical marking for 155-mm howitzer projectile M718A1	ARD-2770
D-65.3	Typical marking for 155-mm howitzer projectile M741A1	ARD-2771
D-65.4	Typical marking for 155-mm howitzer projectile M825	ARD-2774
D-66	Typical marking for 165-mm gun projectiles M123 series and M623.	AR 100084
D-67	Typical marking for 175-mm gun projectile.	AR 100085
D-68	Typical marking for 8-in. howitzer projectile M106.	AR 100086
D-69	Typical marking for 8-in. howitzer projectile M404.	AR 193426B
D-70	Typical marking for 8-in. howitzer projectile M509A1.	AR 101559-B
D-71	Typical marking for 8-in. projectile M650.	AR 101580
D-72	Typical marking for 155-mm projectiles M712 and M823 (Copperhead)	AR 198464
D-73	DELETED	
E-1	Six legged sling, palletized projectile.	ARD 2800
E-2	Single beam, palletized projectile.	ARD 2801
E-3	Double beam, palletized projectile.	ARD 2802
E-4	Rigging of 155mm palletized projectiles.	ARD 2803
E-5	Rigging of 8-inch palletized projectiles.	ARD 2804


1/8"
1/8" LETTERS
40MM HE
CTG M
1/8" SPACING
1/8" LOT NO.
LOT
1/2"

AR 100024

Figure D-1. Typical marking for 40-mm grenade cartridges M381, M382, M386, M406, M407 and M441 series.

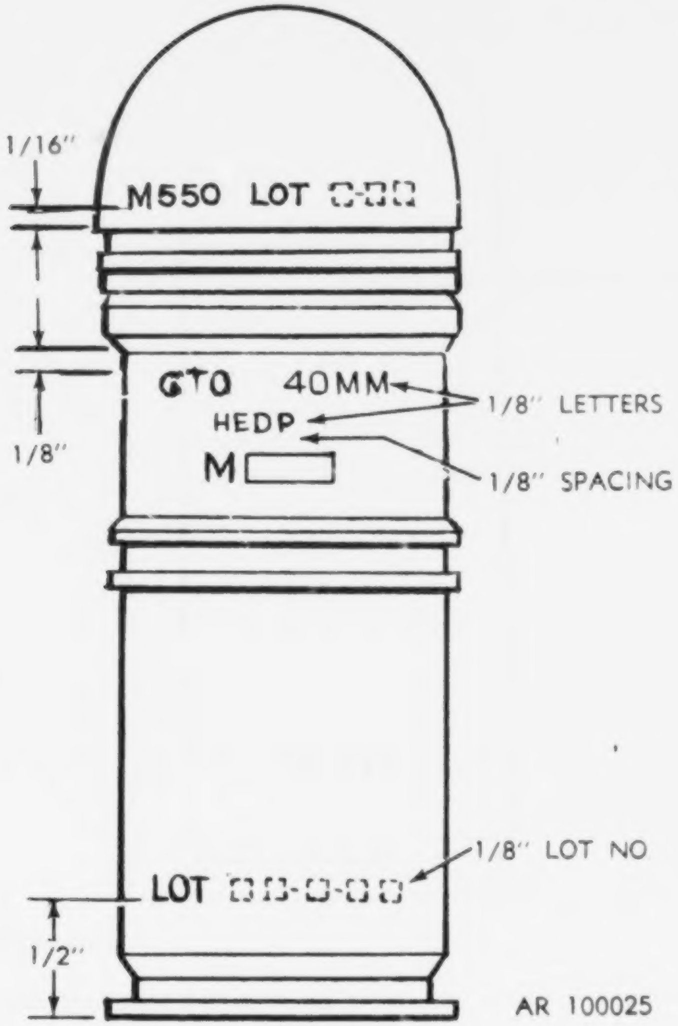

1/16"
M550 LOT
GTO 40MM
HEDP
M
1/8"
1/8" LETTERS
1/8" SPACING
LOT
1/8" LOT NO
1/2"
AR 100025

Figure D-2. Typical marking for 40-mm grenade cartridge M433.

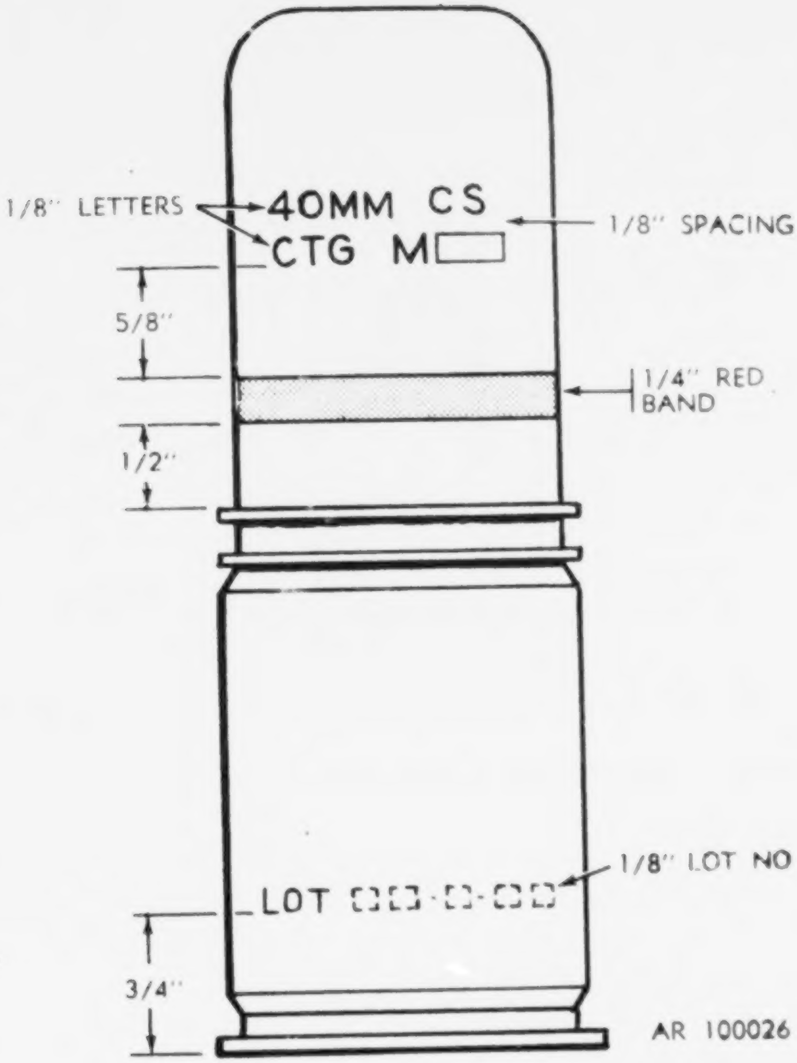

1/8" LETTERS
40MM CS
CTG M
1/8" SPACING
5/8"
1/4" RED BAND
1/2"
1/8" LOT NO
LOT
3/4"
AR 100026

Figure D-3. Typical marking for 40-mm grenade cartridge M651.

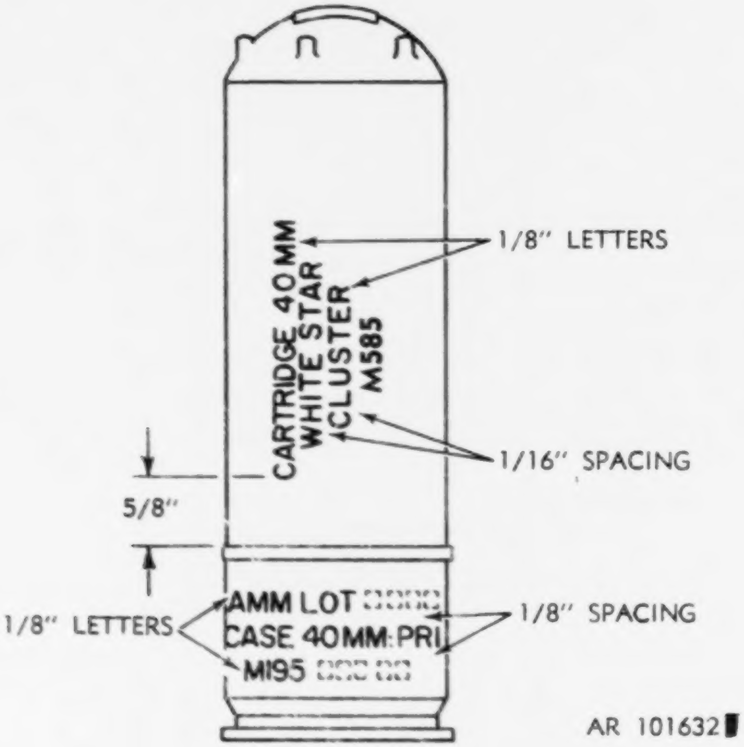

CARTRIDGE 40 MM
WHITE STAR
CLUSTER
M585
1/8" LETTERS
1/16" SPACING
5/8"
AMM LOT
CASE 40MM: PRI
M195
1/8" LETTERS
1/8" SPACING
AR 101632

Figure D-4. Typical marking for 40-mm grenade cartridge M585.

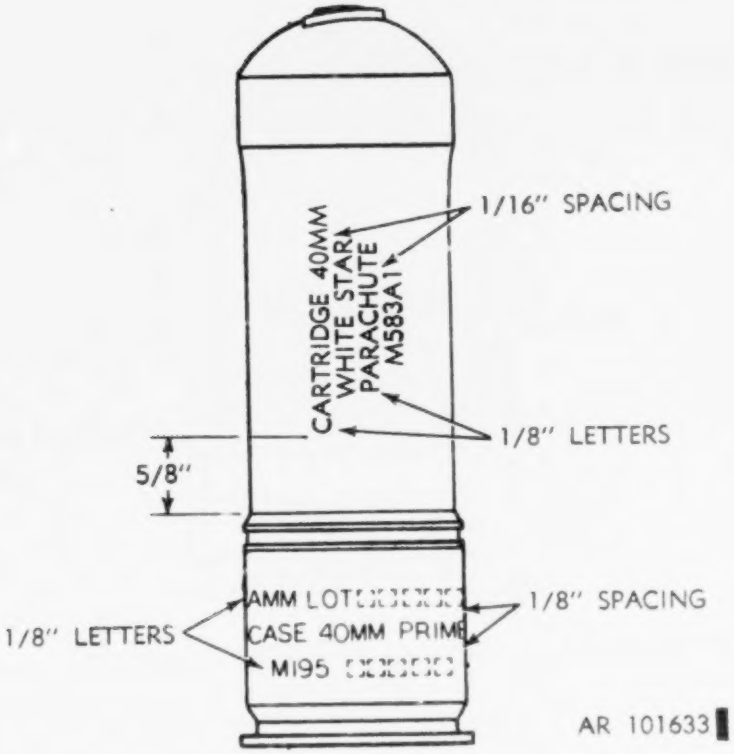

CARTRIDGE 40MM
WHITE STAR
PARACHUTE
M583A1
1/16" SPACING
1/8" LETTERS
5/8"
AMM LOT
CASE 40MM PRIME
M195
1/8" LETTERS
1/8" SPACING
AR 101633

Figure D-5. Typical marking for 40-mm grenade cartridges M583A1, M661 and M662.

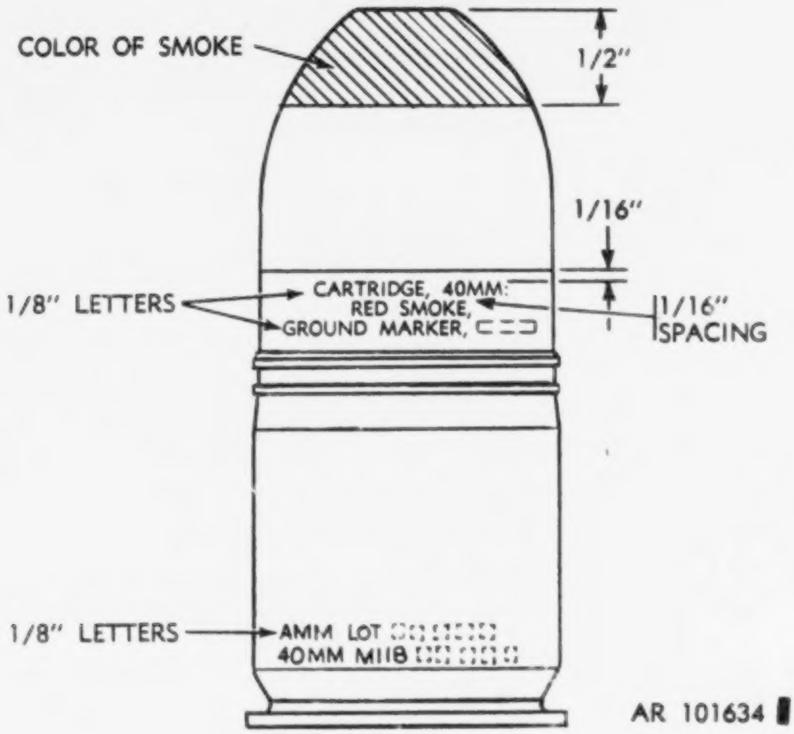

COLOR OF SMOKE
1/2"
1/16"
1/8" LETTERS
CARTRIDGE, 40MM:
RED SMOKE,
GROUND MARKER,
1/16"
SPACING
1/8" LETTERS
AMM LOT
40MM M118
AR 101634

Figure D-6. Typical marking for 40-mm grenade cartridges M713, M715 and M716.

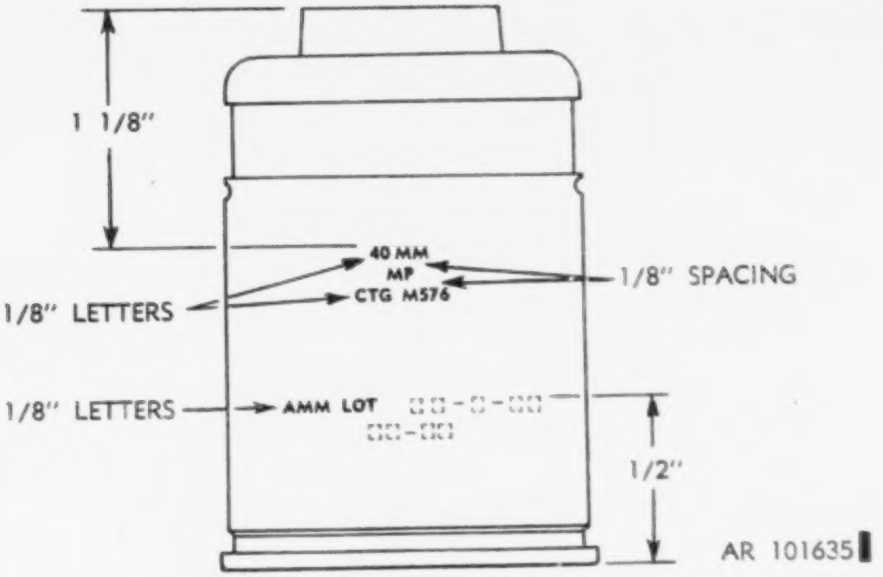
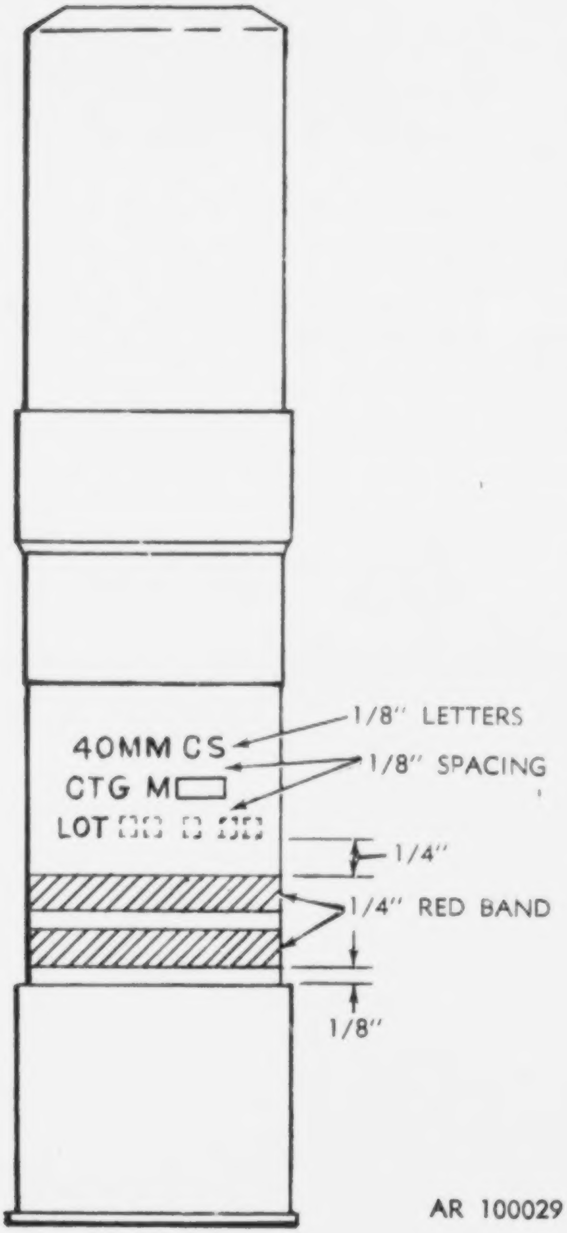

1 1/8"
40 MM
MP
CTG M576
1/8" SPACING
1/8" LETTERS
1/8" LETTERS
AMM LOT
1/2"
AR 101635

Figure D-7. Typical marking for 40-mm grenade cartridge M576.


40MM CS
CTG M
LOT
1/8" LETTERS
1/8" SPACING
1/4"
1/4" RED BAND
1/8"

AR 100029

Figure D-8. Typical marking for 40-mm grenade cartridges M674 and M675.

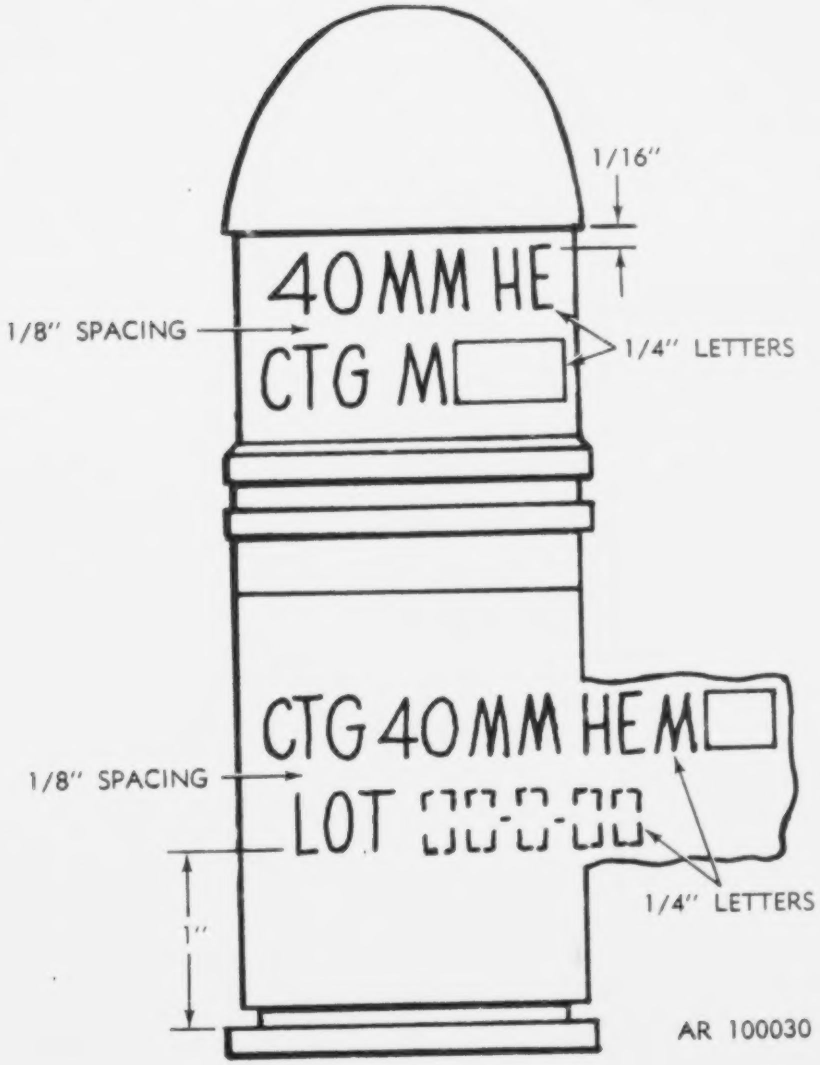

1/16"
40MM HE
1/8" SPACING
CTG M
1/4" LETTERS
CTG 40MM HE M
1/8" SPACING
LOT
1/4" LETTERS
1"
AR 100030

Figure D-9. Typical marking for 40-mm grenade cartridges M383, M384 and M684.

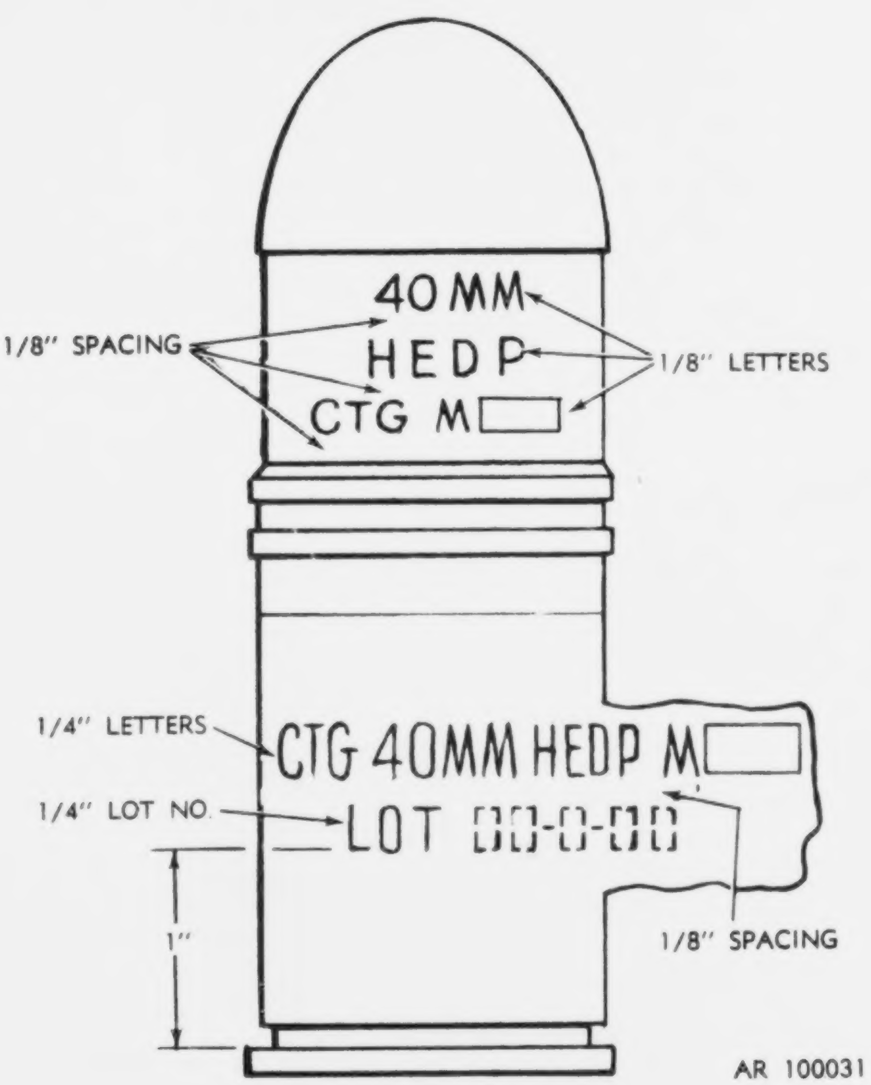
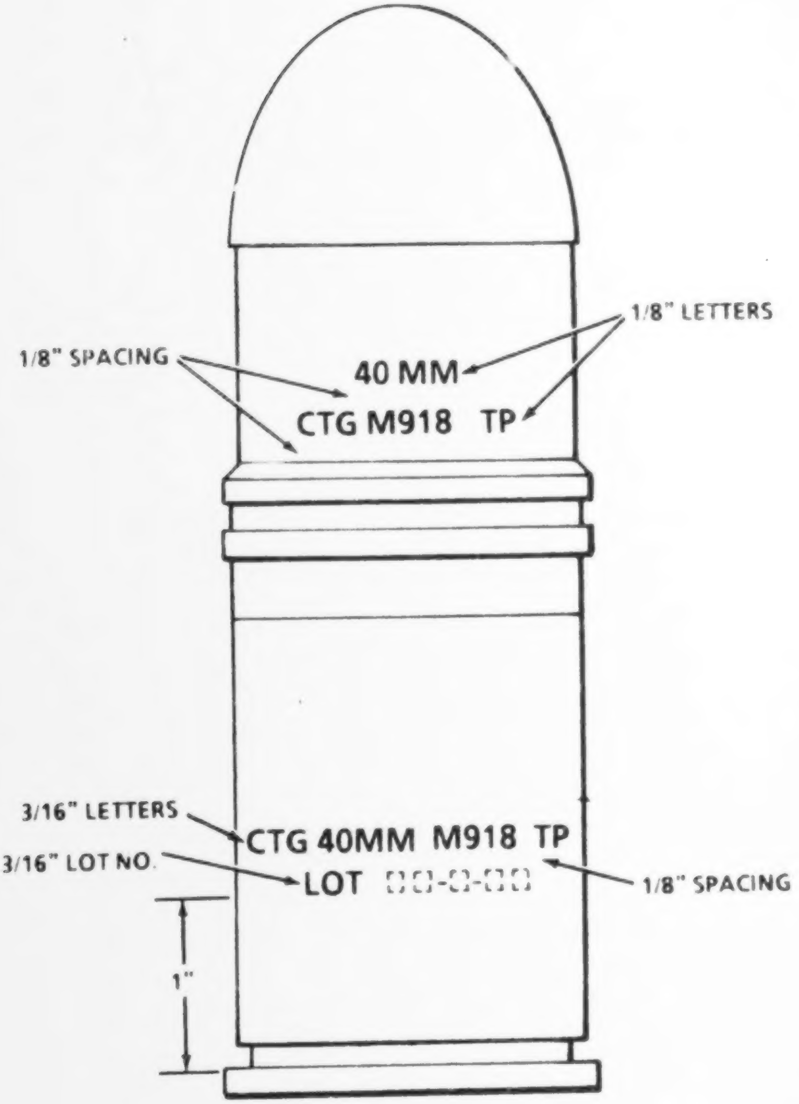

40 MM
HEDP
CTG M
1/8" SPACING
1/8" LETTERS
1/4" LETTERS
CTG 40MM HEDP M
1/4" LOT NO.
LOT
1"
1/8" SPACING
AR 100031

Figure D-10. Typical marking for 40-mm grenade cartridge M430.


1/8" LETTERS
1/8" SPACING
40 MM
CTG M918 TP
3/16" LETTERS
CTG 40MM M918 TP
3/16" LOT NO.
LOT
1/8" SPACING
1"

ARD 2665

D-10.1 Typical marking for 40-mm grenade cartridge M918.

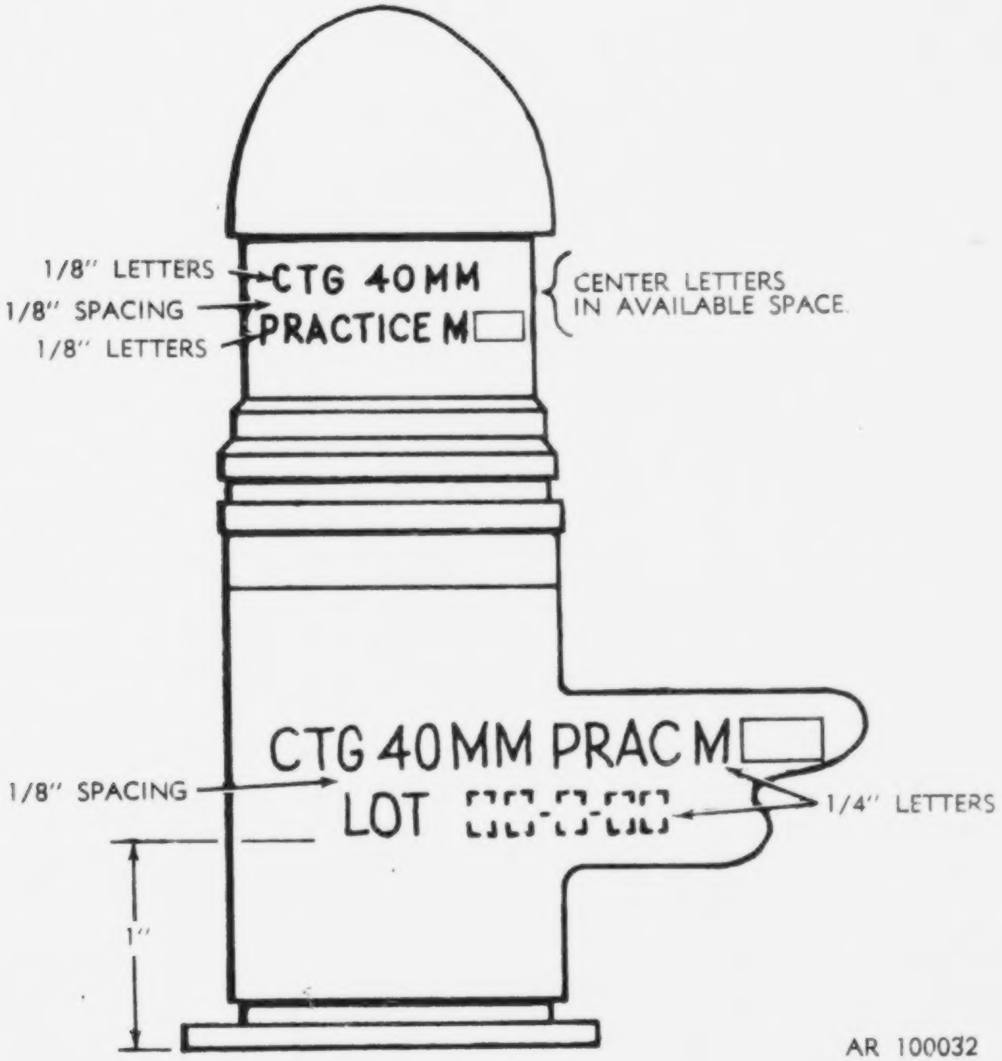

1/8" LETTERS
CTG 40MM
1/8" SPACING
PRACTICE M
1/8" LETTERS
CENTER LETTERS IN AVAILABLE SPACE.
CTG 40MM PRAC M
1/8" SPACING
LOT
1/4" LETTERS
1"
AR 100032

Figure D-11. Typical marking for 40-mm grenade cartridge M385.

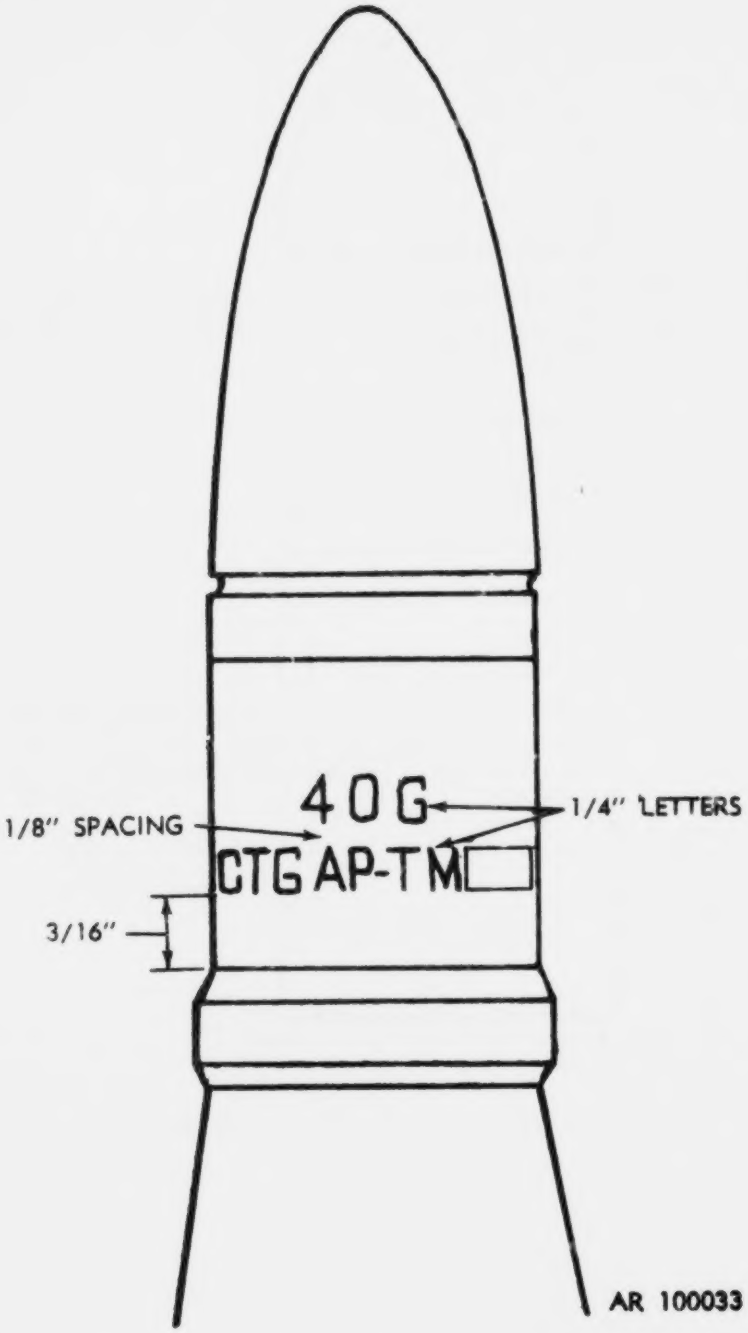

40G
CTG AP-TM
1/8" SPACING
1/4" LETTERS
3/16"
AR 100033

Figure D-12. Typical marking for 40-mm cartridge M81A1.

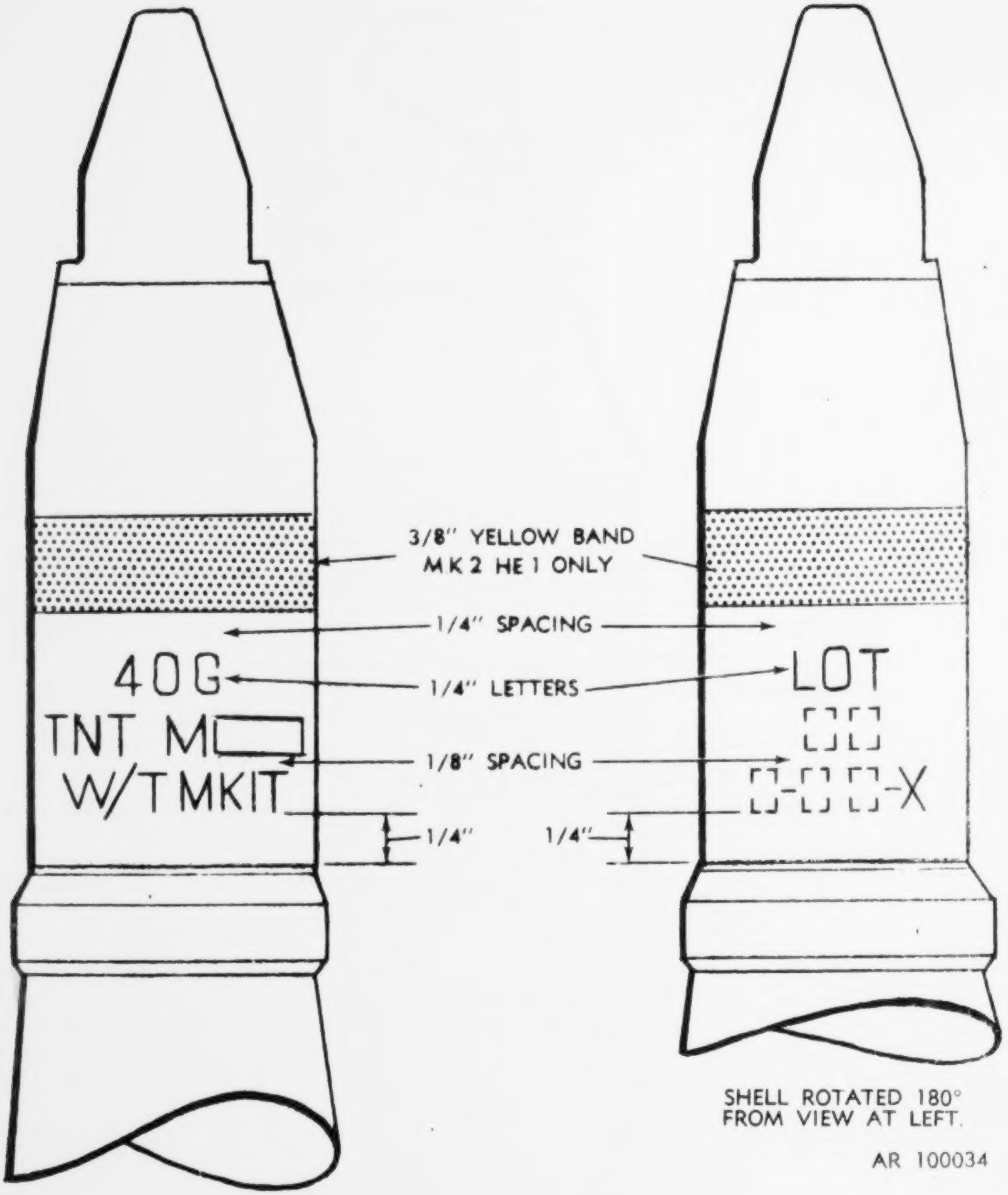
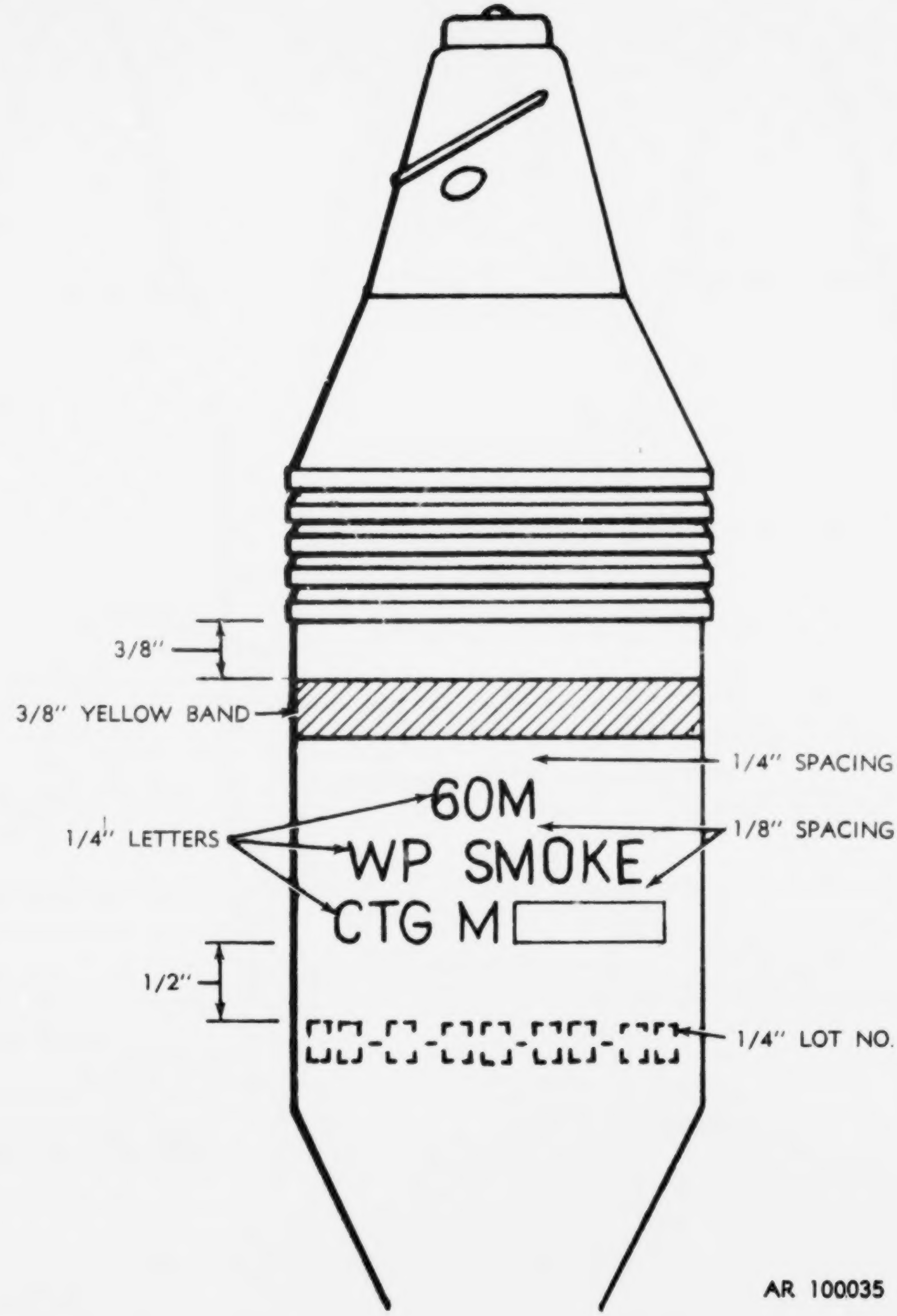
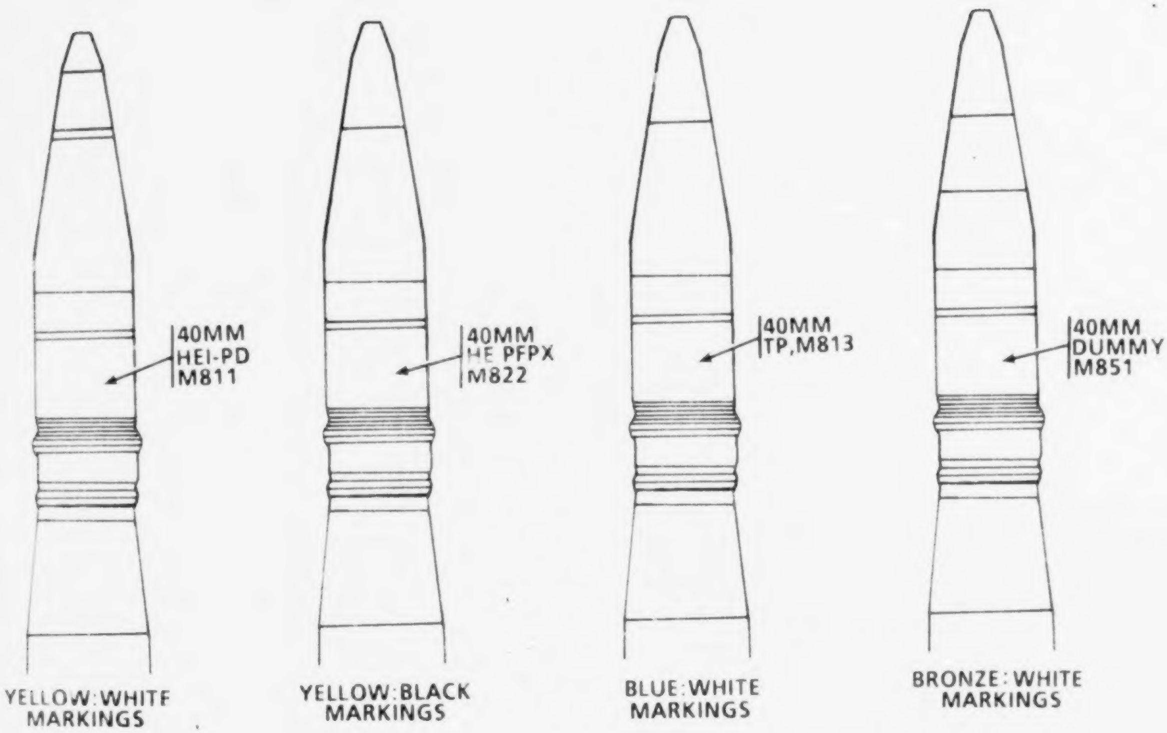

3/8" YELLOW BAND
MK 2 HE 1 ONLY
1/4" SPACING
40G
1/4" LETTERS
LOT
TNT M
W/T MKIT
1/8" SPACING
-X
1/4"
1/4"
SHELL ROTATED 180°
FROM VIEW AT LEFT.
AR 100034

Figure D-13. Typical marking for 40-mm gun cartridges Mk2, M25 and M91.


3/8''
3/8'' YELLOW BAND
1/4'' SPACING
60M
1/4'' LETTERS
1/8'' SPACING
WP SMOKE
CTG M
1/2''
1/4'' LOT NO.

AR 100035

Figure D-14. Typical marking for 60-mm mortar cartridges M302 series.


40MM
HEI-PD
M811
40MM
HE PFPX
M822
40MM
TP,M813
40MM
DUMMY
M851
YELLOW:WHITE MARKINGS
YELLOW:BLACK MARKINGS
BLUE:WHITE MARKINGS
BRONZE:WHITE MARKINGS

Markings stenciled on projectiles are:

Caliber and type of weapon
Type of projectile
Model projectile (A.R.)

ARD 84-1609

Figure 13.1. Typical markings for 40mm gun cartridges M811, M813, M822 and M851 (SGT York)

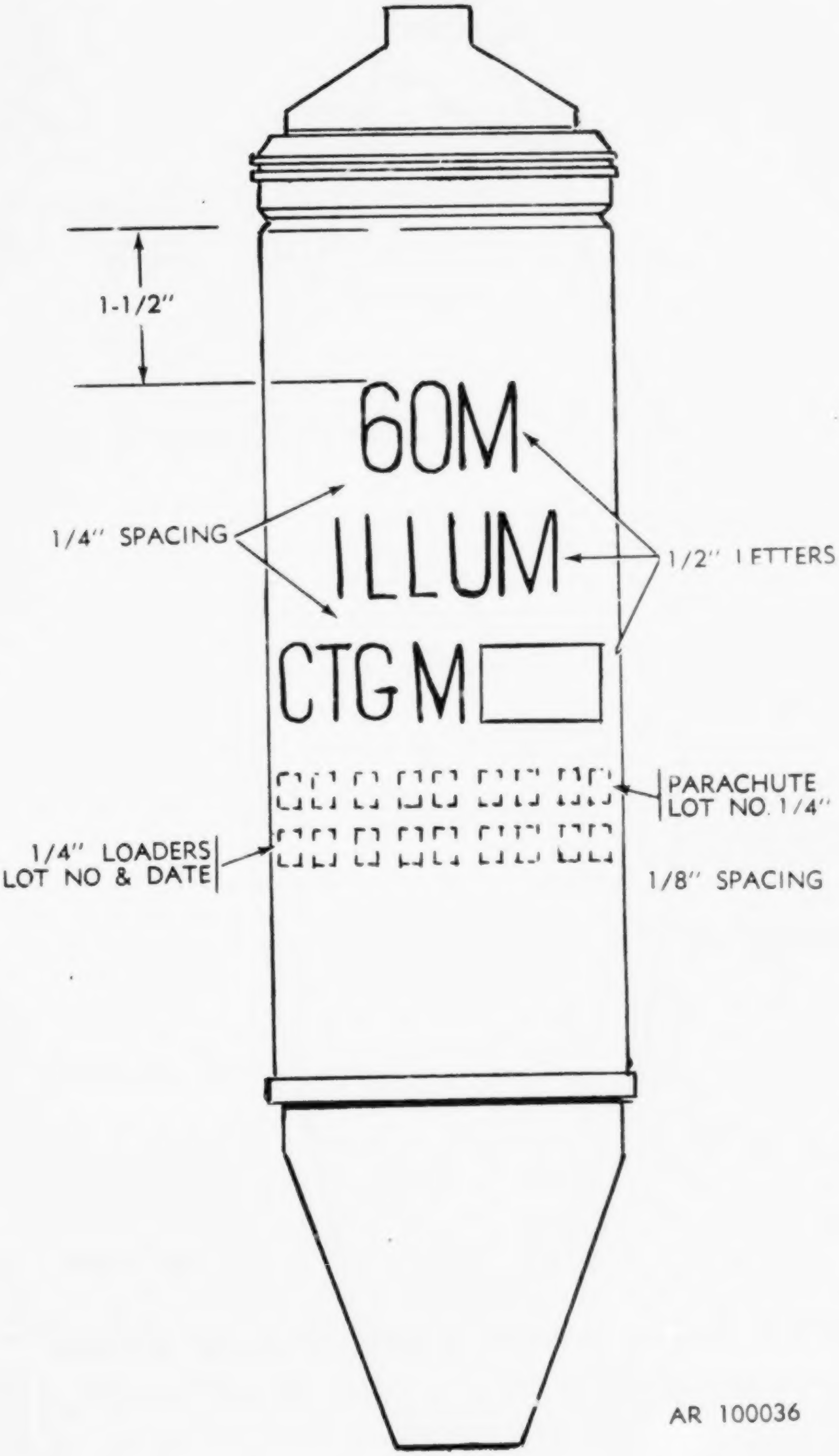

1-1/2"
60M
1/4" SPACING
ILLUM
1/2" LETTERS
CTG M
PARACHUTE
LOT NO. 1/4"
1/4" LOADERS
LOT NO & DATE
1/8" SPACING
AR 100036

Figure D-15. Typical marking for 60-mm mortar cartridges M83 series.

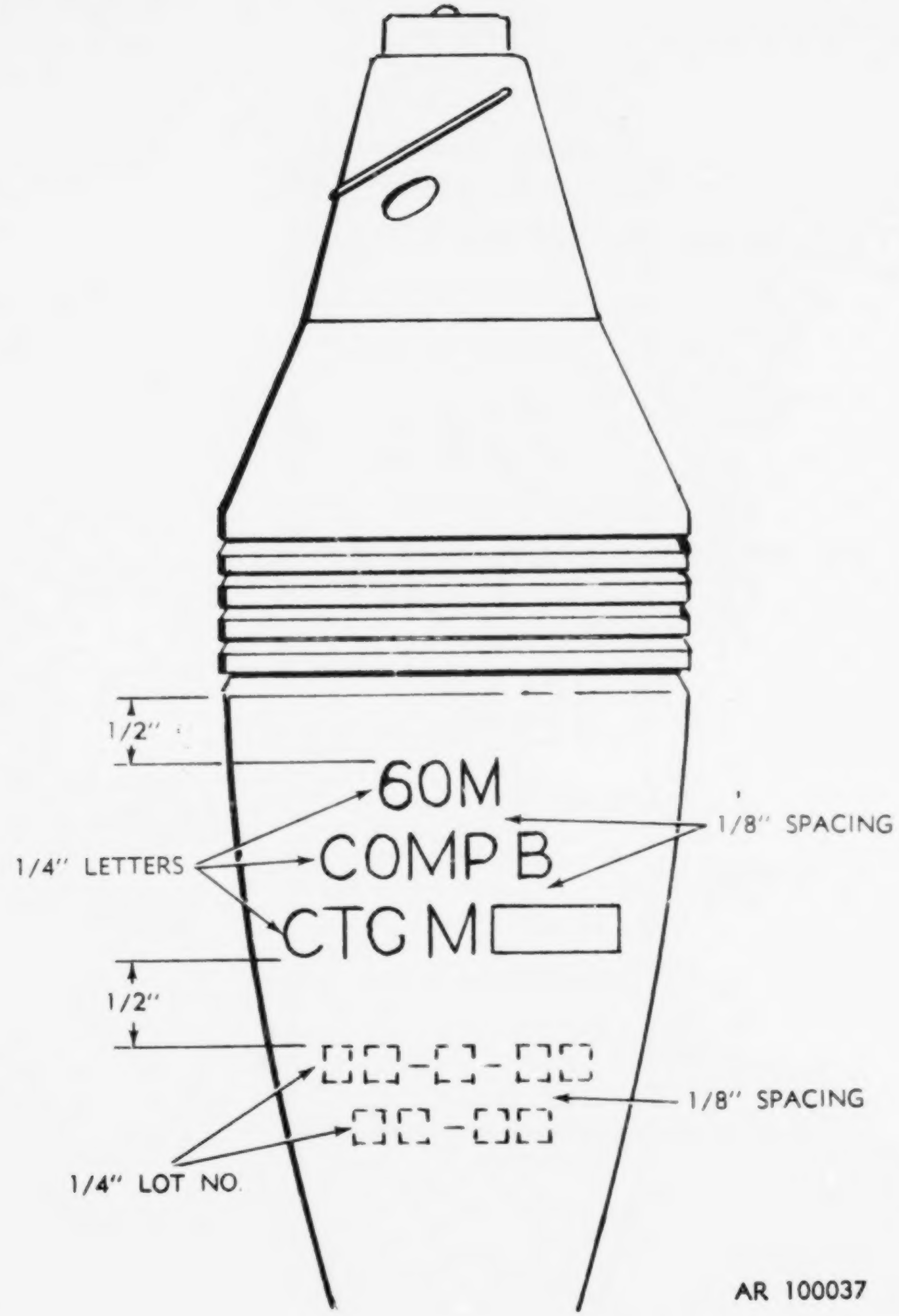

1/2"
60M
COMP B
CTG M
1/4" LETTERS
1/8" SPACING
1/2"
1/8" SPACING
1/4" LOT NO.
AR 100037

Figure D-16. Typical marking for 60-mm mortar cartridges M49 series, M50 series and M720.

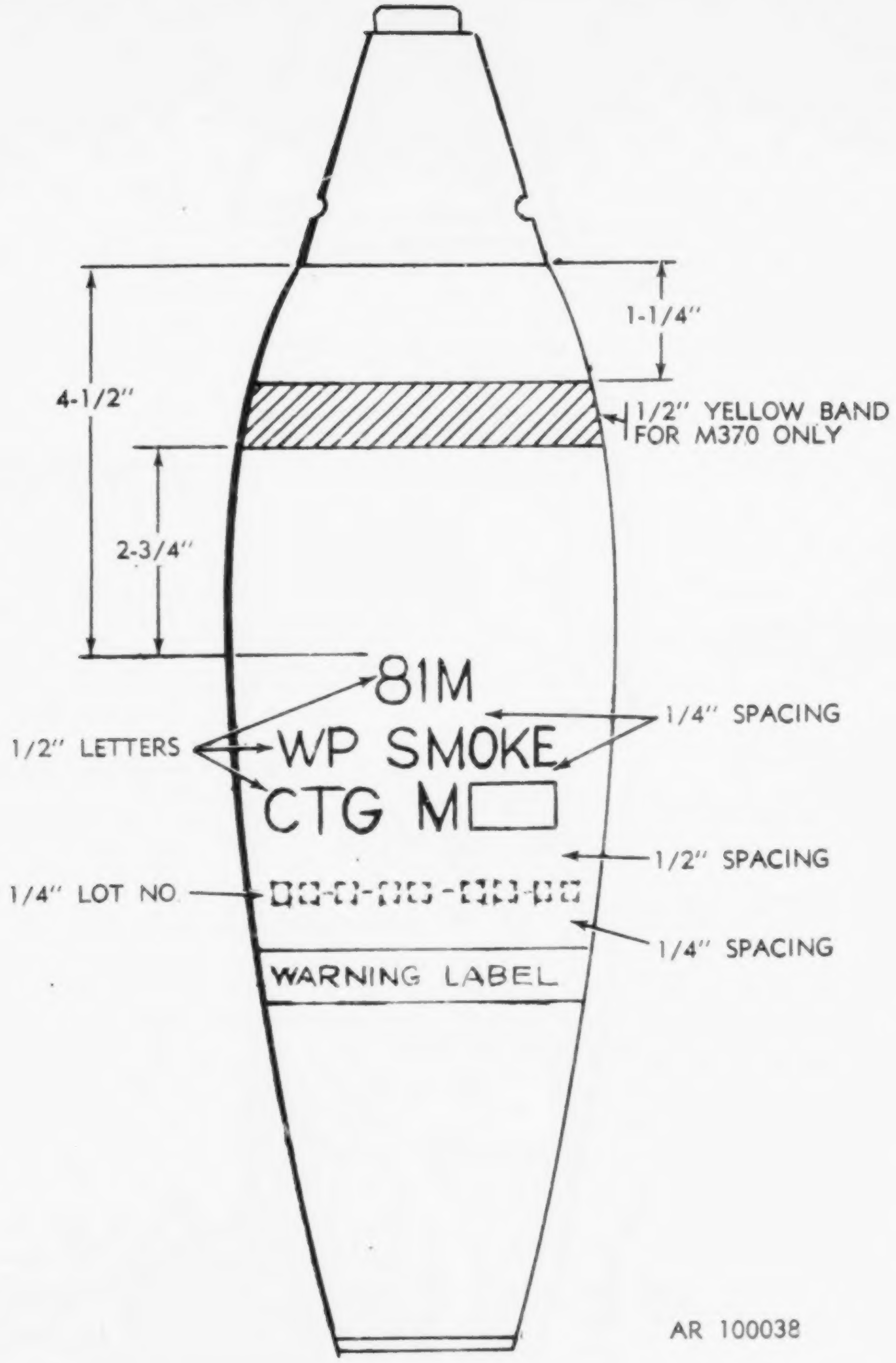

1-1/4"
4-1/2"
1/2" YELLOW BAND FOR M370 ONLY
2-3/4"
81M
1/2" LETTERS
WP SMOKE
1/4" SPACING
CTG M
1/2" SPACING
1/4" LOT NO.
1/4" SPACING
WARNING LABEL
AR 100038

Figure D-17. Typical marking for 81-mm mortar cartridges M362 series, M370 and M445.

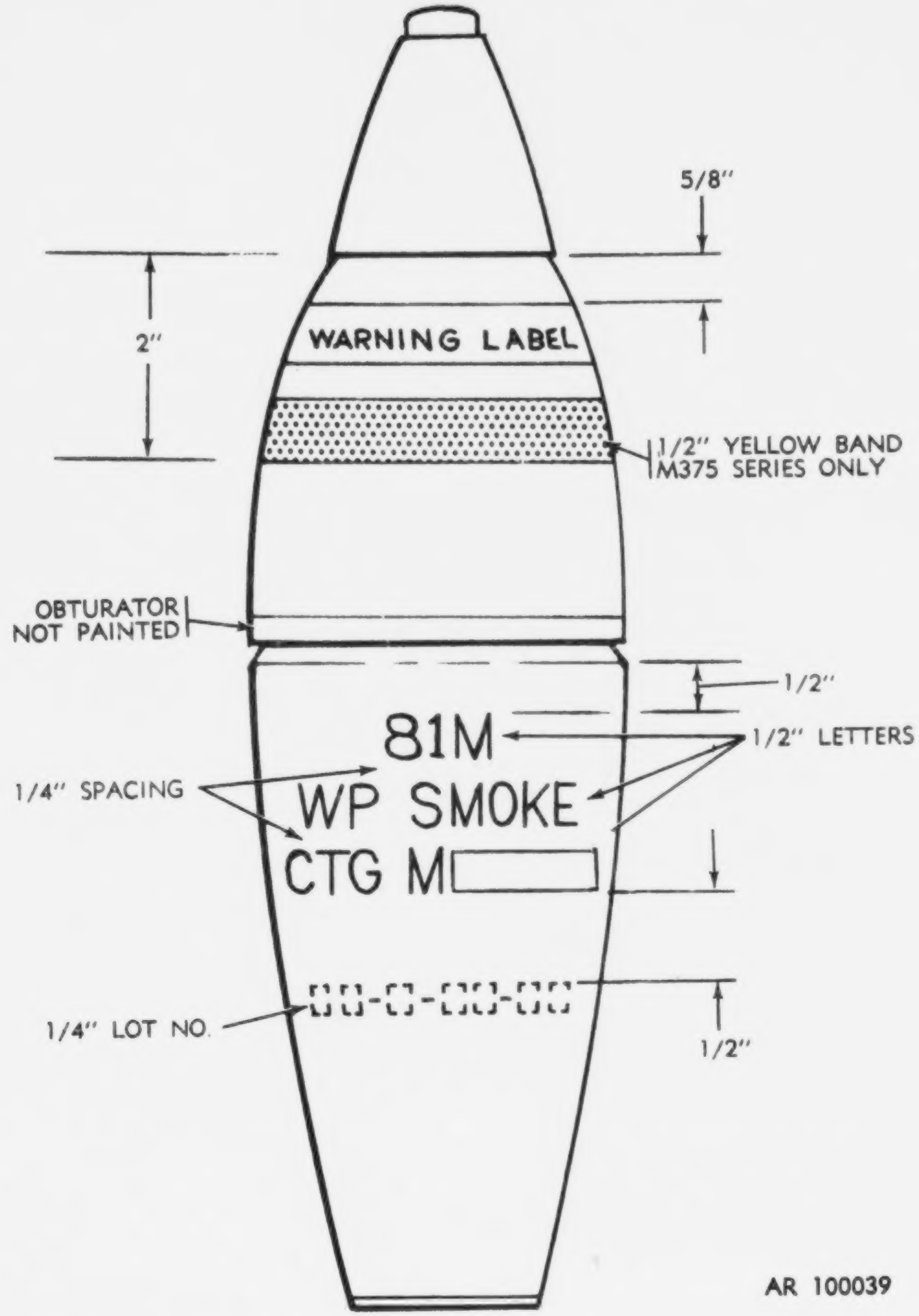

5/8"
2"
WARNING LABEL
1/2" YELLOW BAND
M375 SERIES ONLY
OBTURATOR
NOT PAINTED
1/2"
81M
1/2" LETTERS
1/4" SPACING
WP SMOKE
CTG M
1/4" LOT NO.
1/2"
AR 100039

Figure D-18. Typical marking for 81-mm mortar cartridges M374 series and M375 series.

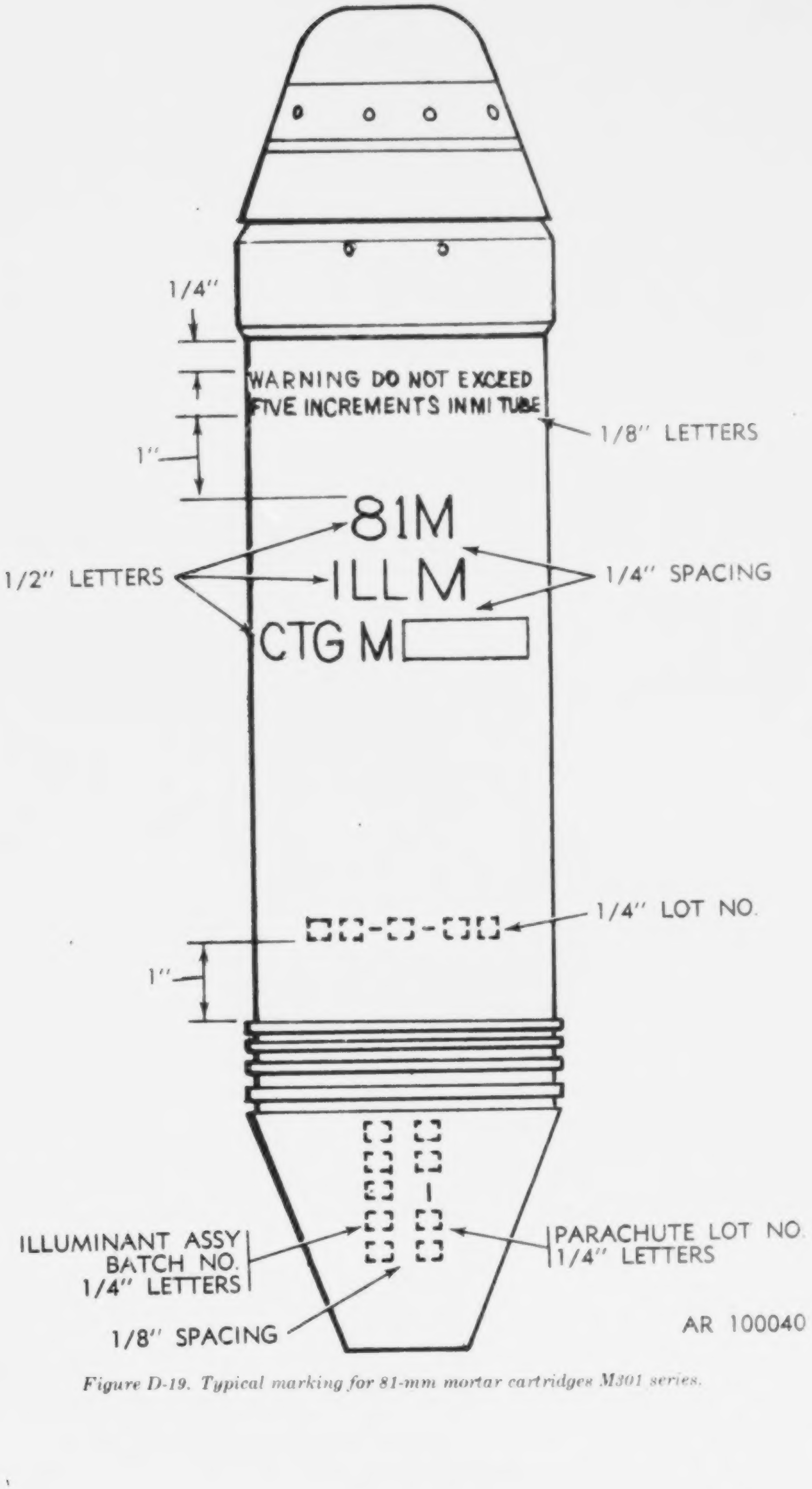

1/4"
WARNING DO NOT EXCEED
FIVE INCREMENTS IN MI TUBE
1/8" LETTERS
1"
81M
ILLM
CTG M
1/2" LETTERS
1/4" SPACING
1/4" LOT NO.
1"
ILLUMINANT ASSY
BATCH NO.
1/4" LETTERS
PARACHUTE LOT NO.
1/4" LETTERS
1/8" SPACING
AR 100040

Figure D-19. Typical marking for 81-mm mortar cartridges M301 series.

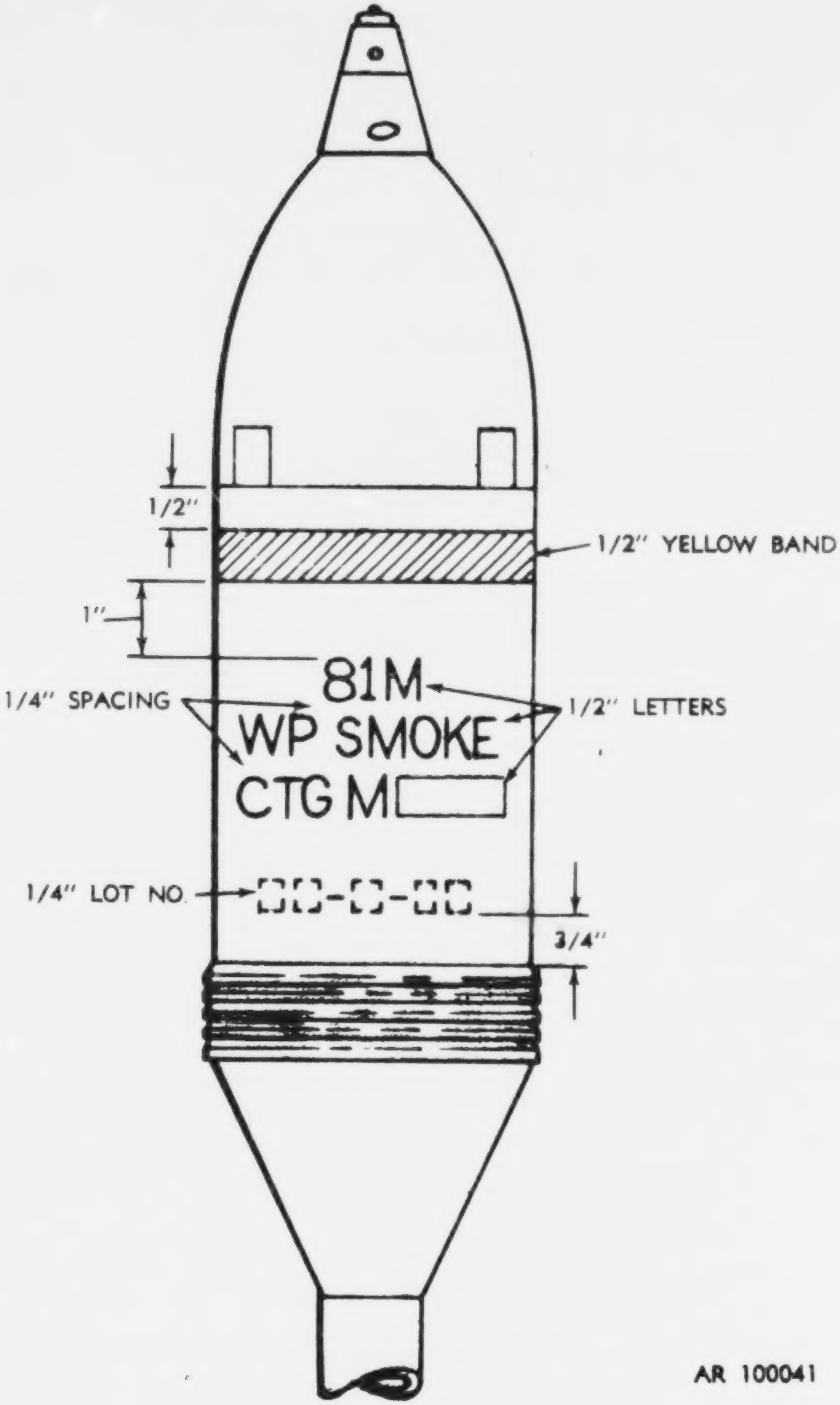

1/2"
1/2" YELLOW BAND
1"
81M
WP SMOKE
CTG M
1/4" SPACING
1/2" LETTERS
1/4" LOT NO.
3/4"
AR 100041

Figure D-20. Typical marking for 81-mm mortar cartridges M57 series.

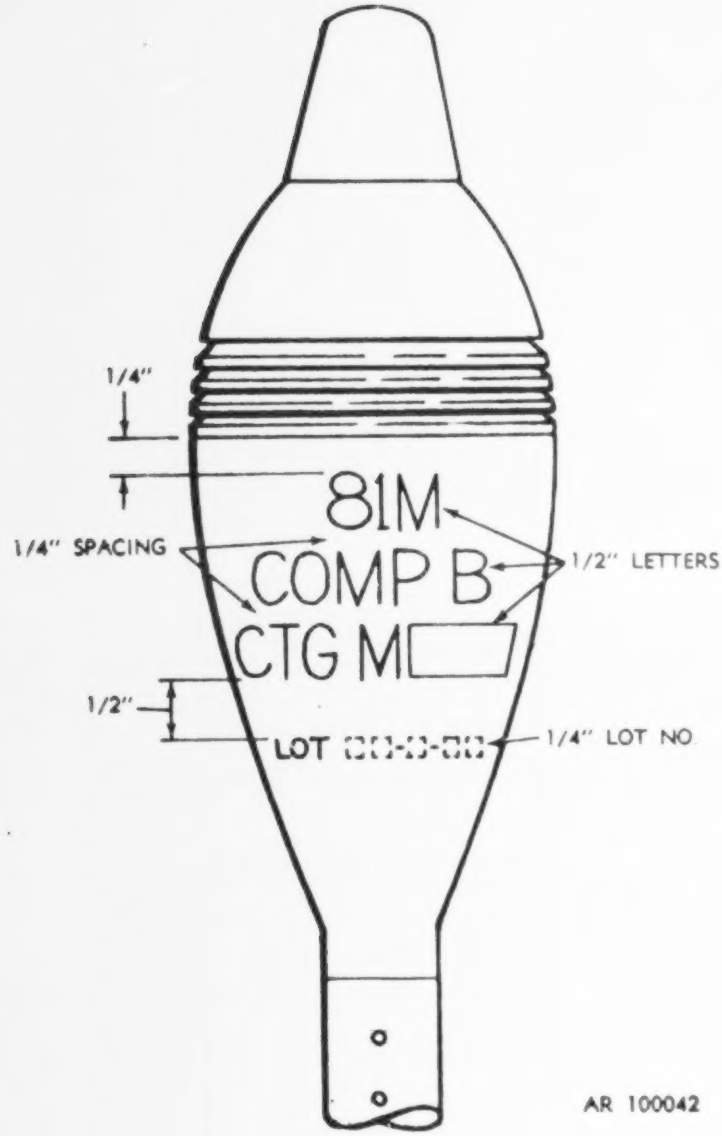
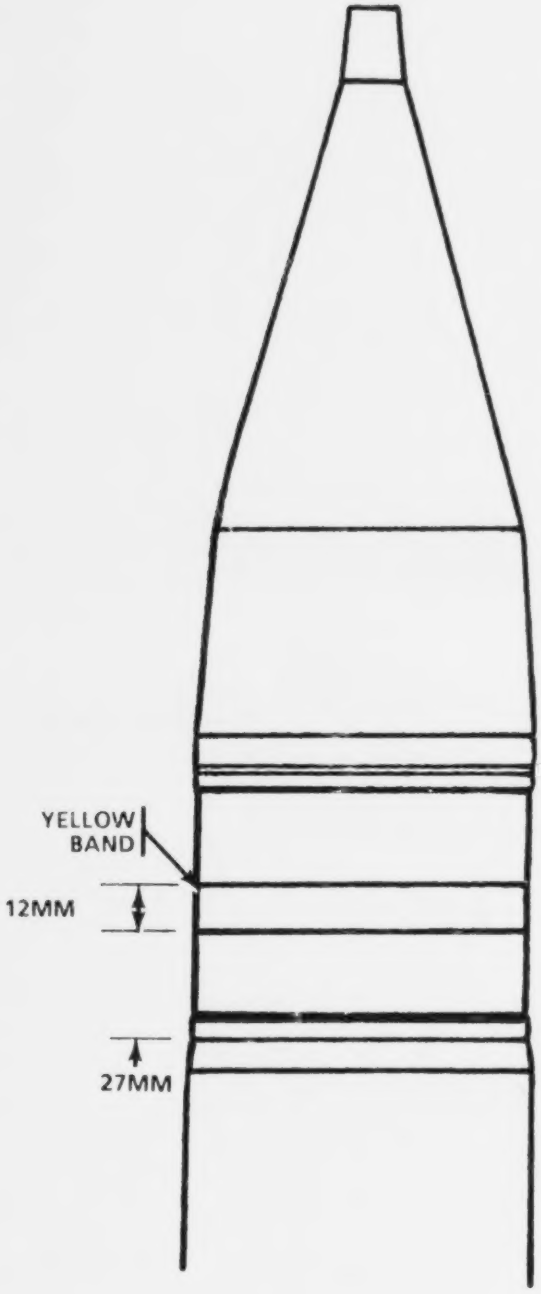

1/4"
81M
1/4" SPACING
COMP B
1/2" LETTERS
CTG M
1/2"
LOT
1/4" LOT NO.
AR 100042

Figure D-21. Typical marking for 81-mm mortar cartridges M23 series (HE and TP)


YELLOW
BAND
12MM
27MM

ARD 2805

Figure D-21.1. Typical marking for 84-mm launcher cartridge, M136 (AT4).

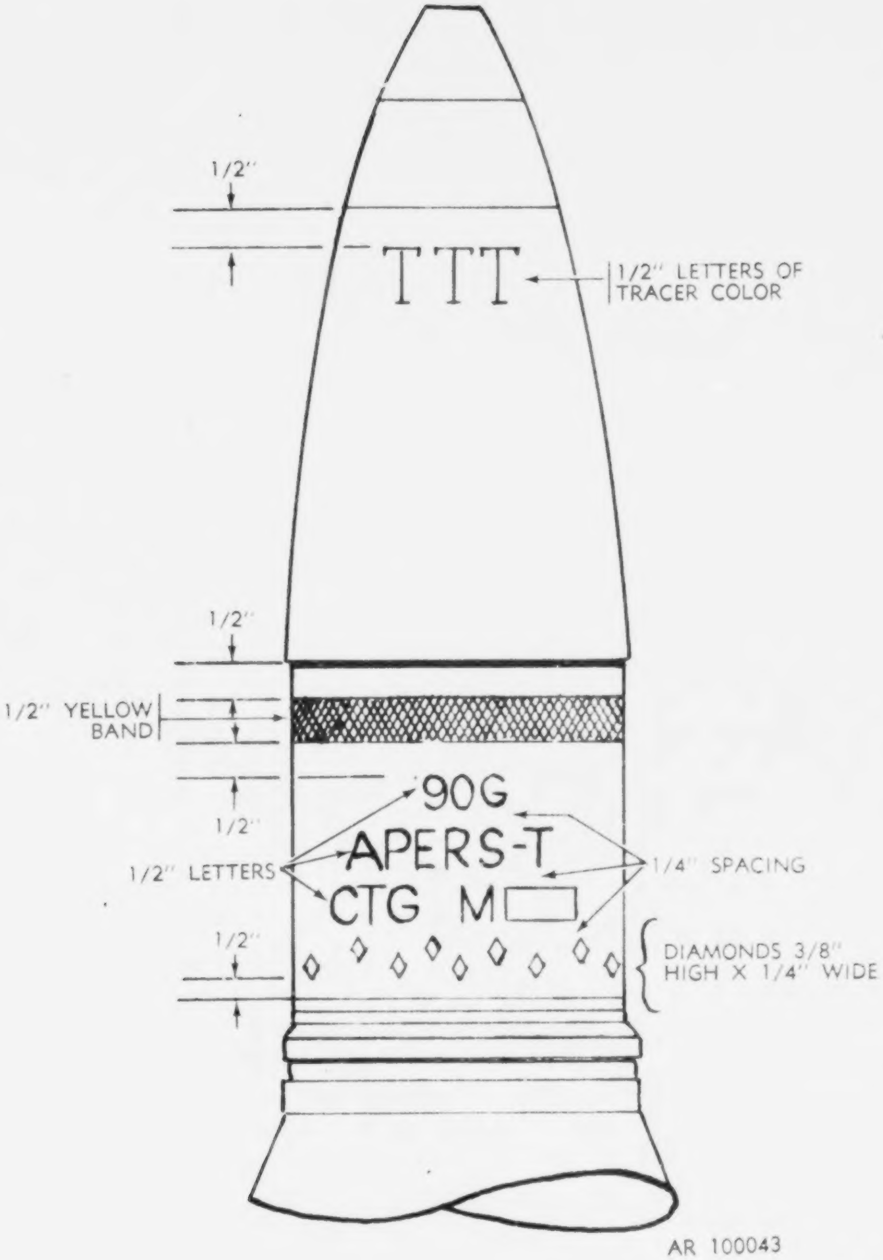

1/2"
TTT
1/2" LETTERS OF TRACER COLOR
1/2"
1/2" YELLOW BAND
90G
1/2"
APERS-T
1/2" LETTERS
CTG M
1/4" SPACING
1/2"
DIAMONDS 3/8" HIGH X 1/4" WIDE
AR 100043

Figure D-22. Typical marking for 90-mm gun cartridge M580.

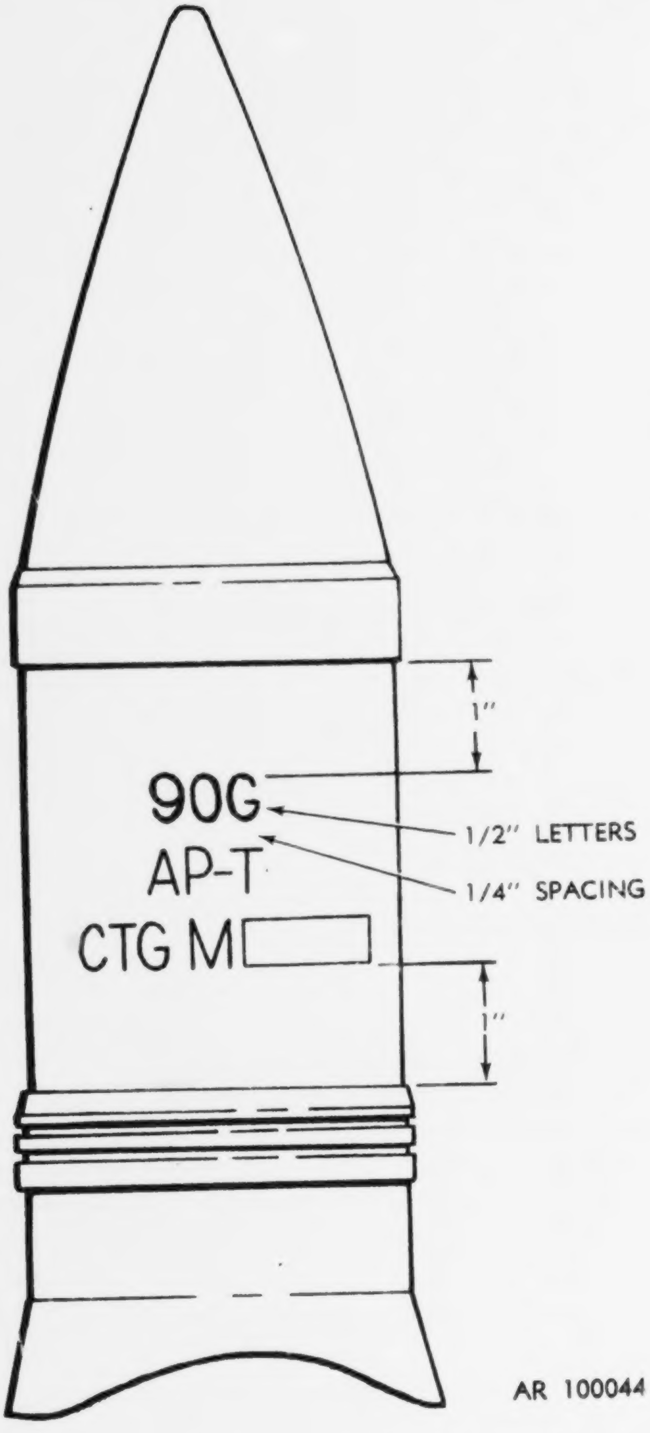

1"
90G
AP-T
CTG M
1/2" LETTERS
1/4" SPACING
1"
AR 100044

Figure D-23. Typical marking for 90-mm gun cartridge M77, M318 and M353 series.

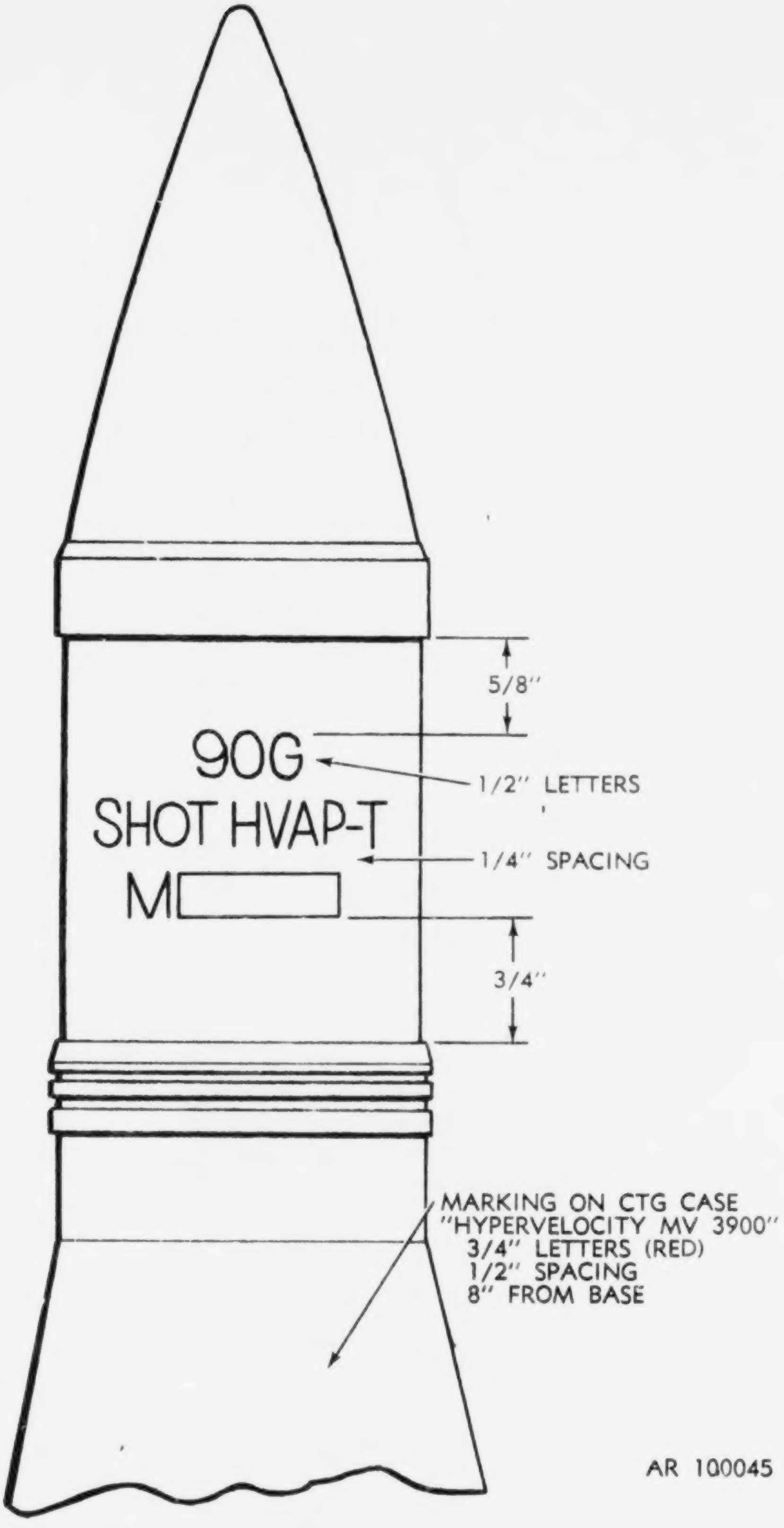

90G
SHOT HVAP-T
M
5/8"
1/2" LETTERS
1/4" SPACING
3/4"
MARKING ON CTG CASE
"HYPERVELOCITY MV 3900"
3/4" LETTERS (RED)
1/2" SPACING
8" FROM BASE
AR 100045

Figure D-24. Typical marking for 90-mm gun cartridge M332A1.

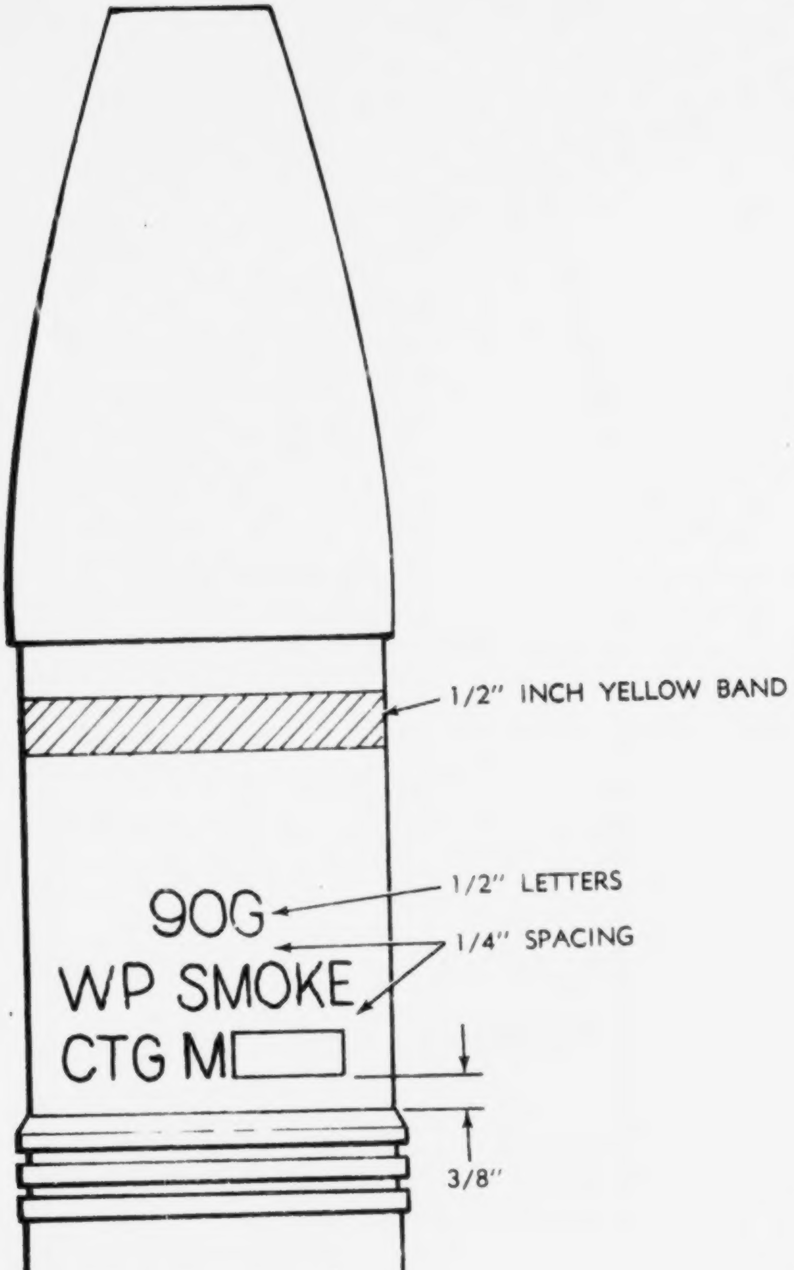

1/2" INCH YELLOW BAND
1/2" LETTERS
1/4" SPACING
90G
WP SMOKE
CTG M
3/8"
AR 100046

Figure D-25. Typical marking for 90-mm gun cartridge M313 series.

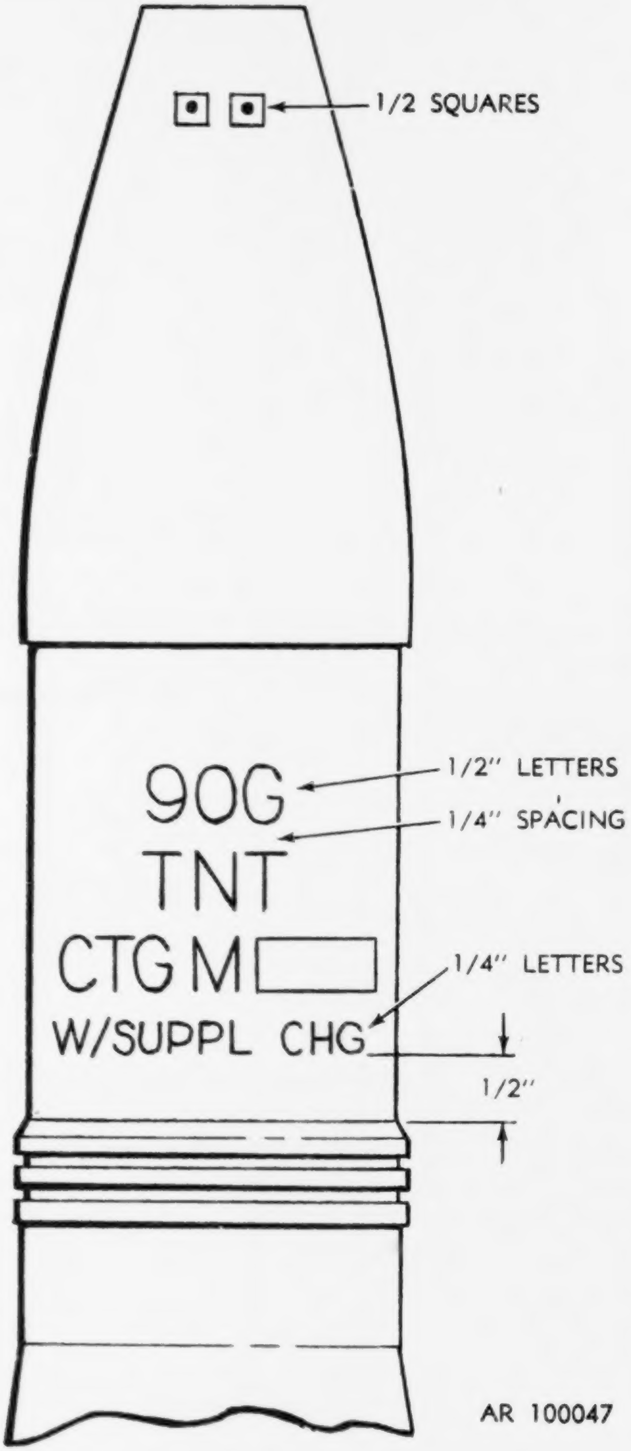

1/2 SQUARES
90G
TNT
CTG M
W/SUPPL CHG
1/2" LETTERS
1/4" SPACING
1/4" LETTERS
1/2"
AR 100047

Figure D-26. Typical marking for 90-mm gun cartridge M71 series.

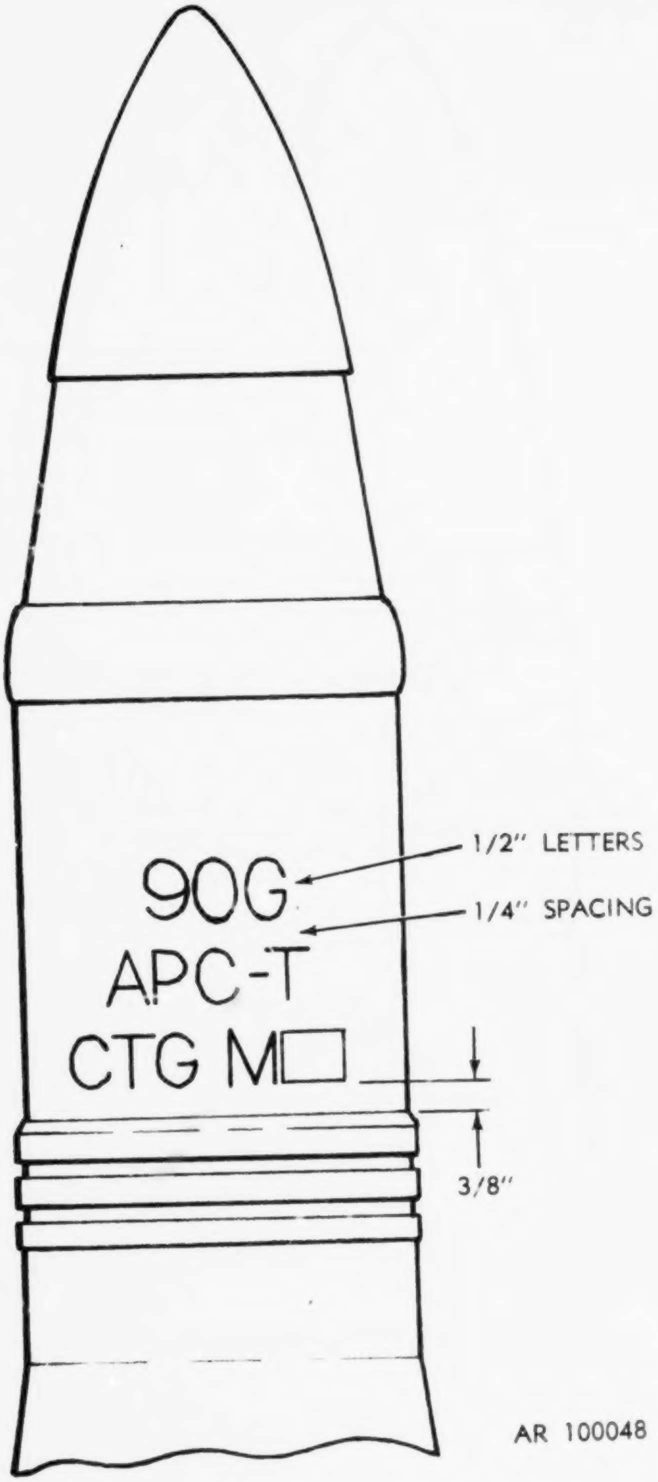

1/2" LETTERS
1/4" SPACING
90G
APC-T
CTG M☐
3/8"
AR 100048

Figure D-27. Typical marking for 90-mm gun cartridge M82.

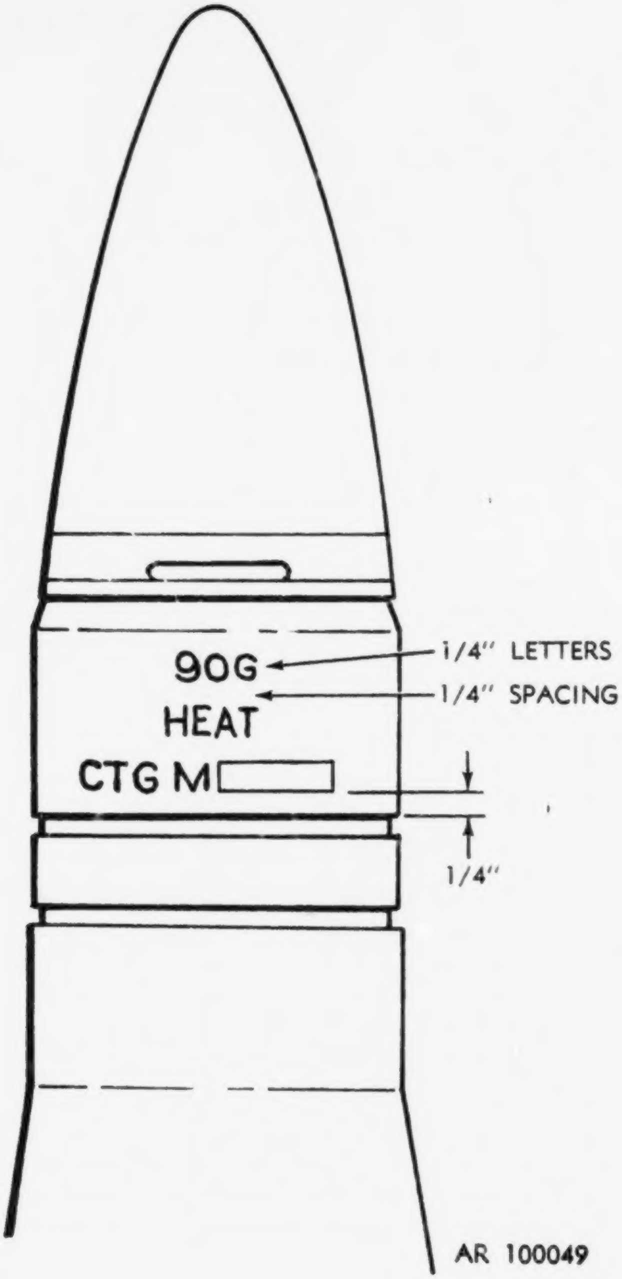

90G
HEAT
CTG M
1/4" LETTERS
1/4" SPACING
1/4"
AR 100049

Figure D-28. Typical marking for 90-mm gun cartridge M348A1.

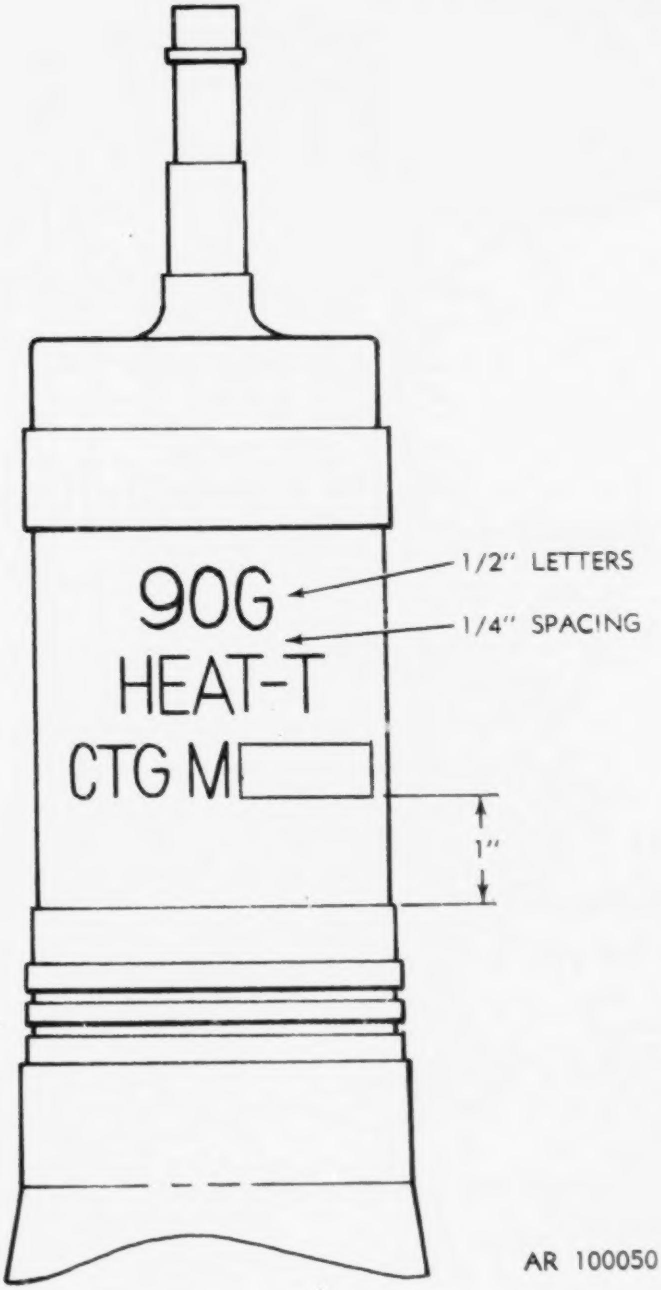

90G
HEAT-T
CTG M
1/2" LETTERS
1/4" SPACING
1"
AR 100050

Figure D-29. Typical marking for 90-mm gun cartridge M431 series.

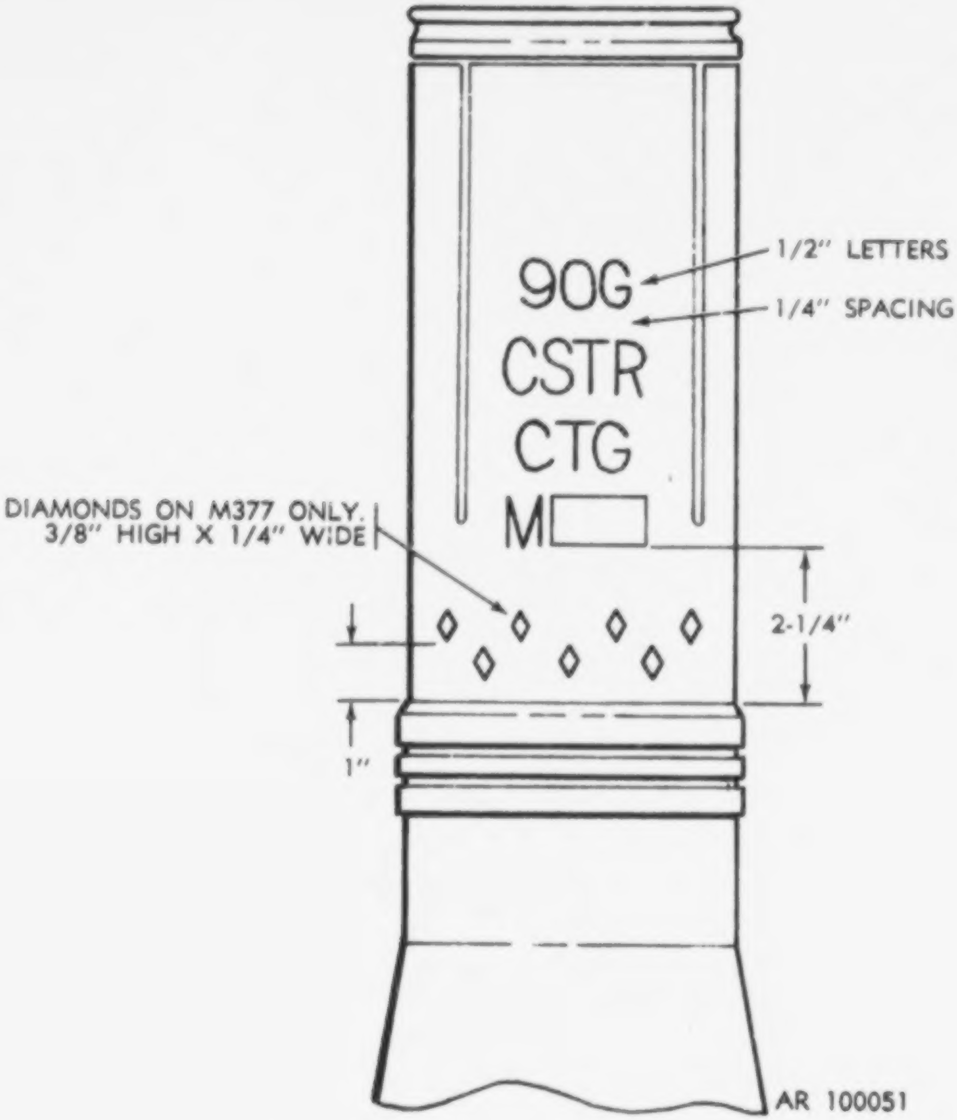

90G
CSTR
CTG
M
1/2" LETTERS
1/4" SPACING
DIAMONDS ON M377 ONLY.
3/8" HIGH X 1/4" WIDE
2-1/4"
1"
AR 100051

Figure D-30. Typical marking for 90-mm gun cartridges M336 and M377.

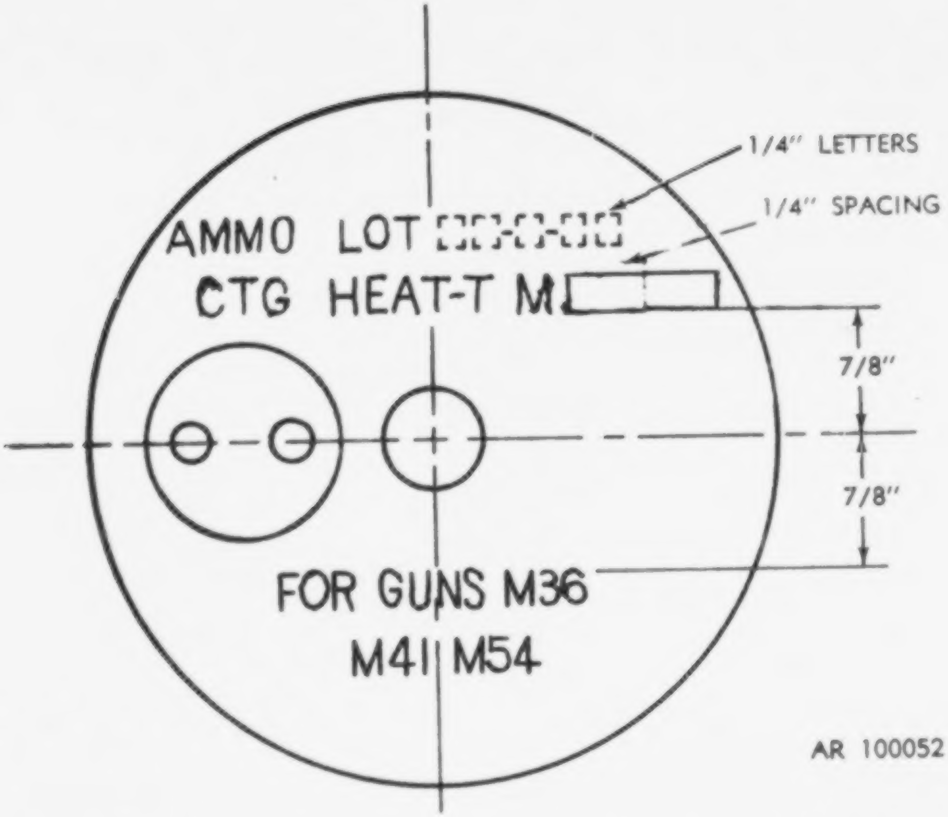

1/4" LETTERS
1/4" SPACING
AMMO LOT [ ][ ]-[ ]-[ ][ ]
CTG HEAT-T M[ ][ ]
7/8"
7/8"
FOR GUNS M36
M41 M54
AR 100052

Figure D-31. Typical marking for cartridge case on 90-mm gun cartridge M431A2.

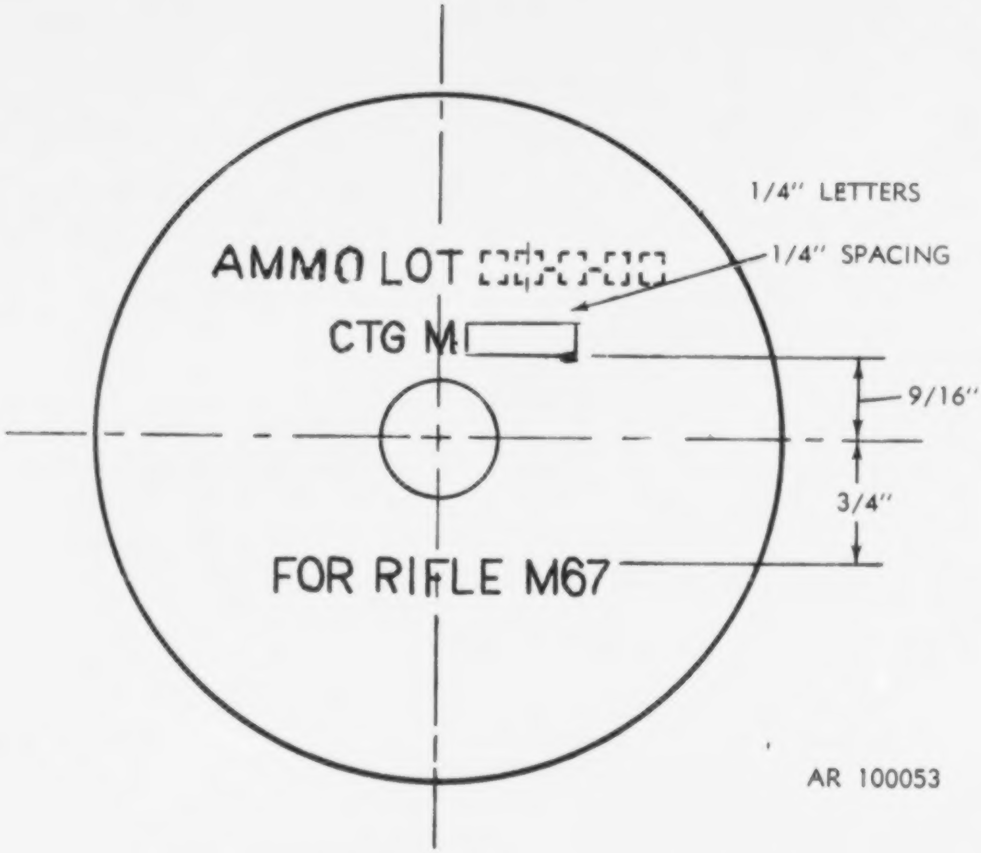

1/4" LETTERS
1/4" SPACING
AMMO LOT
CTG M
9/16"
3/4"
FOR RIFLE M67
AR 100053

Figure D-32. Typical marking for cartridge case on 90-mm rifle cartridge M371A1.

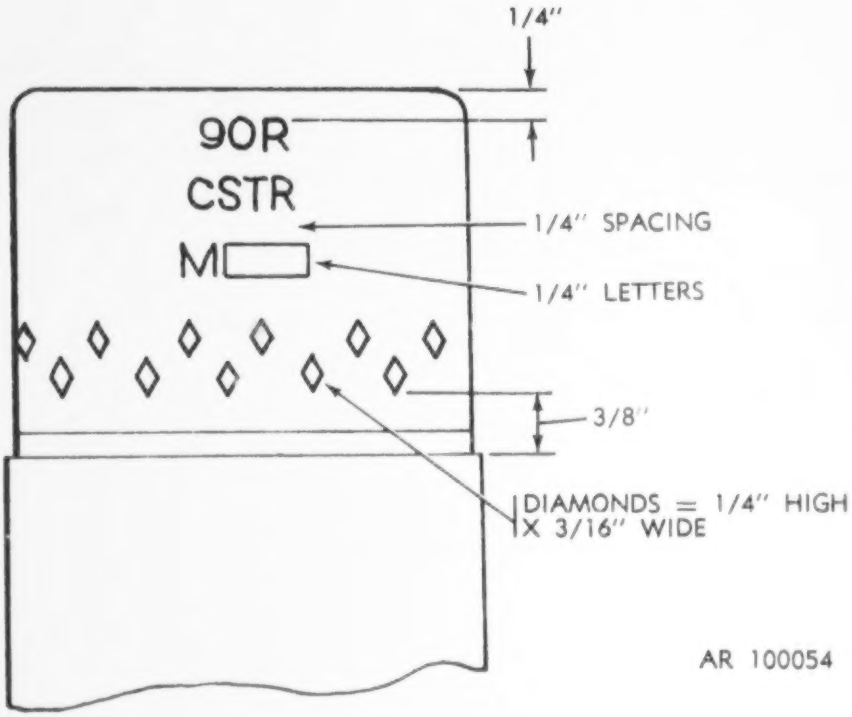

1/4"
90R
CSTR
M
1/4" SPACING
1/4" LETTERS
3/8"
DIAMONDS = 1/4" HIGH
X 3/16" WIDE
AR 100054

Figure D-33. Typical marking for 90-mm rifle cartridge M590.

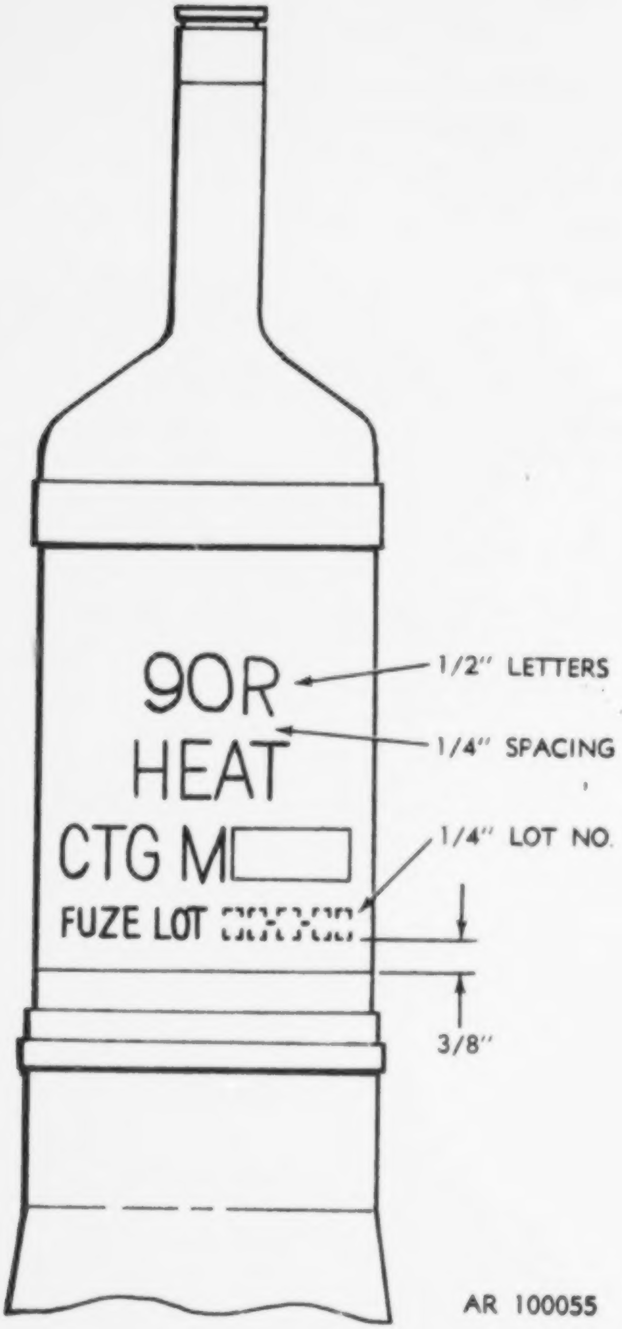

90R
HEAT
CTG M
FUZE LOT
1/2" LETTERS
1/4" SPACING
1/4" LOT NO.
3/8"
AR 100055

Figure D-34. Typical marking for 90-mm rifle cartridge M371 series.

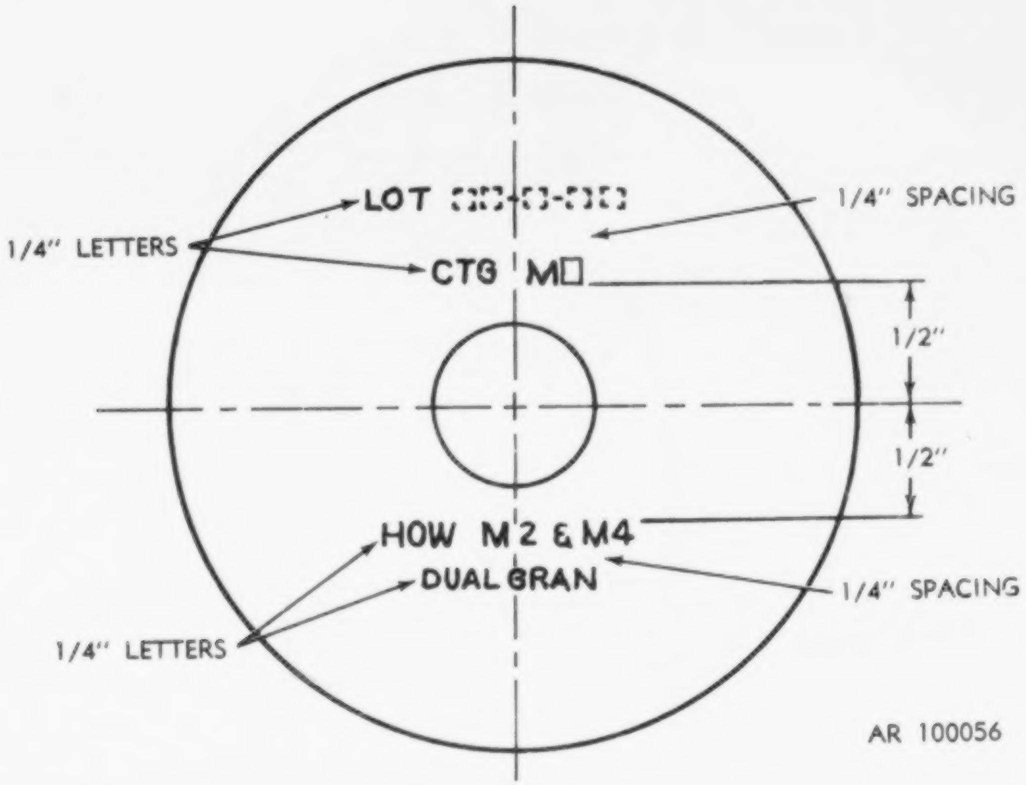

LOT ⌜⌝⌜⌝-⌜⌝-⌜⌝⌜⌝
1/4" SPACING
1/4" LETTERS
CTG M☐
1/2"
1/2"
HOW M2 & M4
DUAL GRAN
1/4" SPACING
1/4" LETTERS
AR 100056

Figure D-35. Typical marking for cartridge case on 105-mm howitzer round M1.

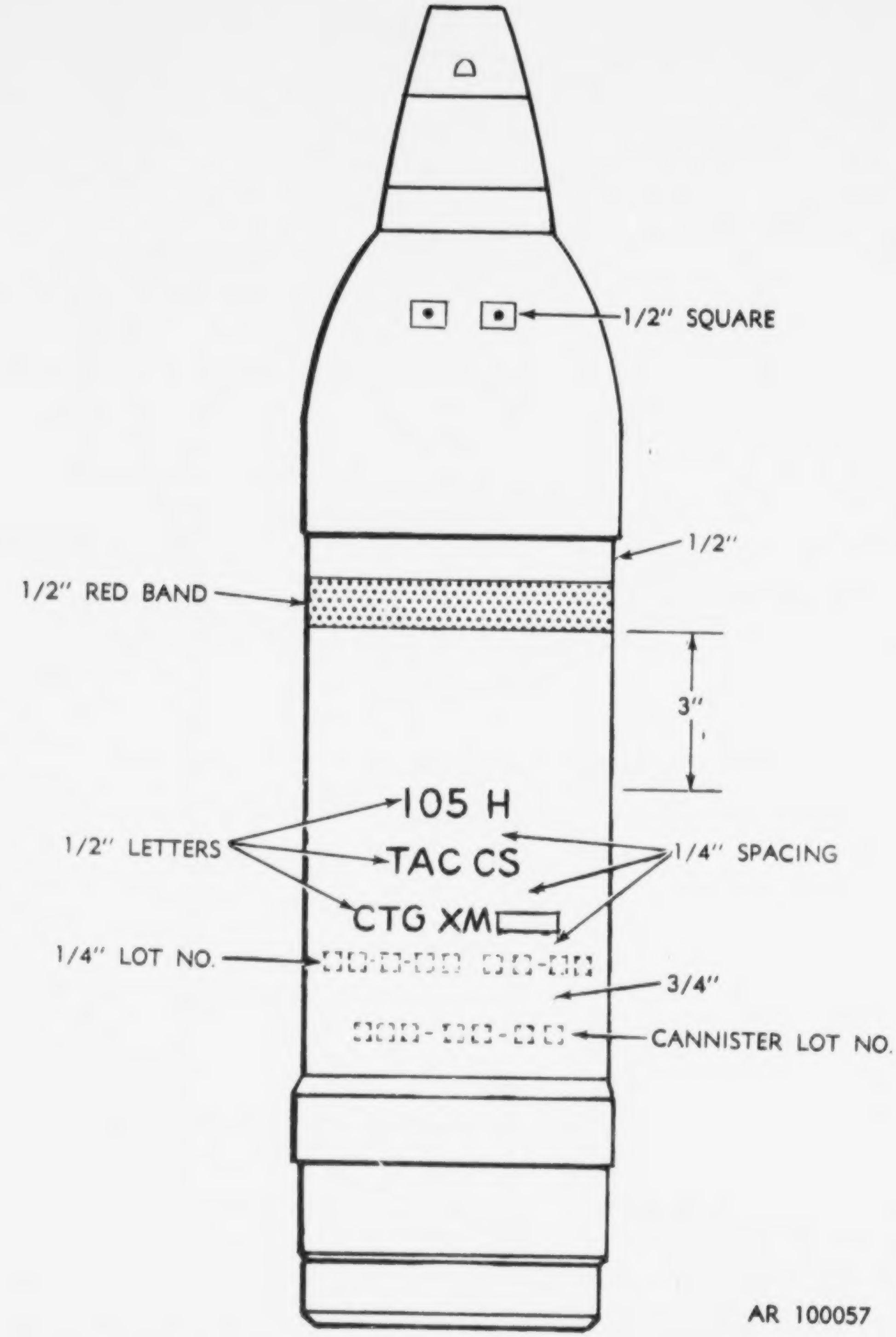

1/2" SQUARE
1/2"
1/2" RED BAND
3"
105 H
1/2" LETTERS
TAC CS
1/4" SPACING
CTG XM
1/4" LOT NO.
3/4"
CANNISTER LOT NO.
AR 100057

Figure D-36. Typical marking for projectile of 105-mm howitzer cartridge XM629.

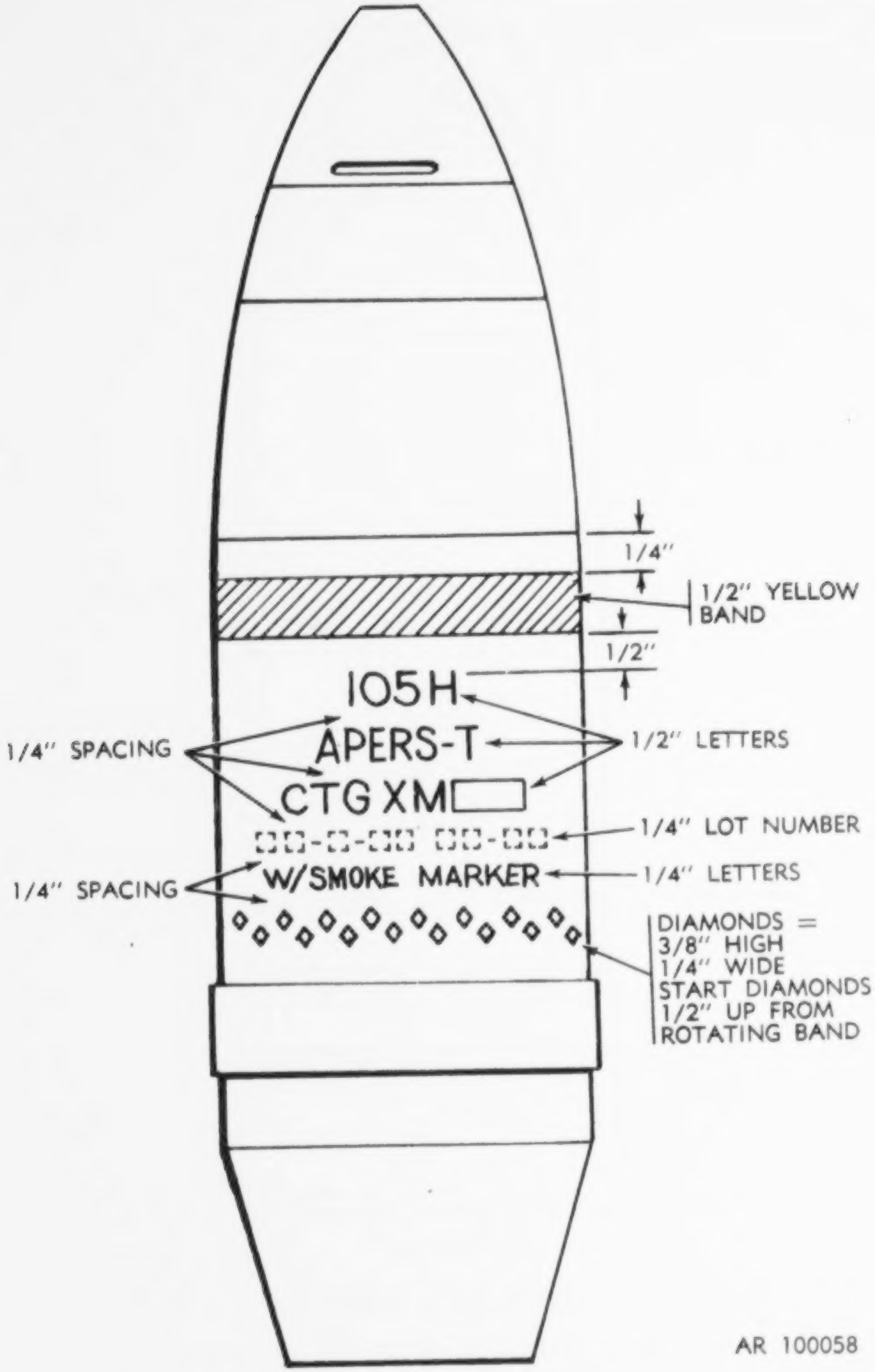

1/4"
1/2" YELLOW BAND
1/2"
105H
APERS-T
CTG XM
1/4" SPACING
1/2" LETTERS
[ ][ ]-[ ]-[ ][ ] [ ][ ]-[ ][ ]
1/4" LOT NUMBER
W/SMOKE MARKER
1/4" SPACING
1/4" LETTERS
DIAMONDS = 3/8" HIGH 1/4" WIDE START DIAMONDS 1/2" UP FROM ROTATING BAND
AR 100058

Figure D-37. Typical marking for projectile of 105-mm howitzer cartridge M546.

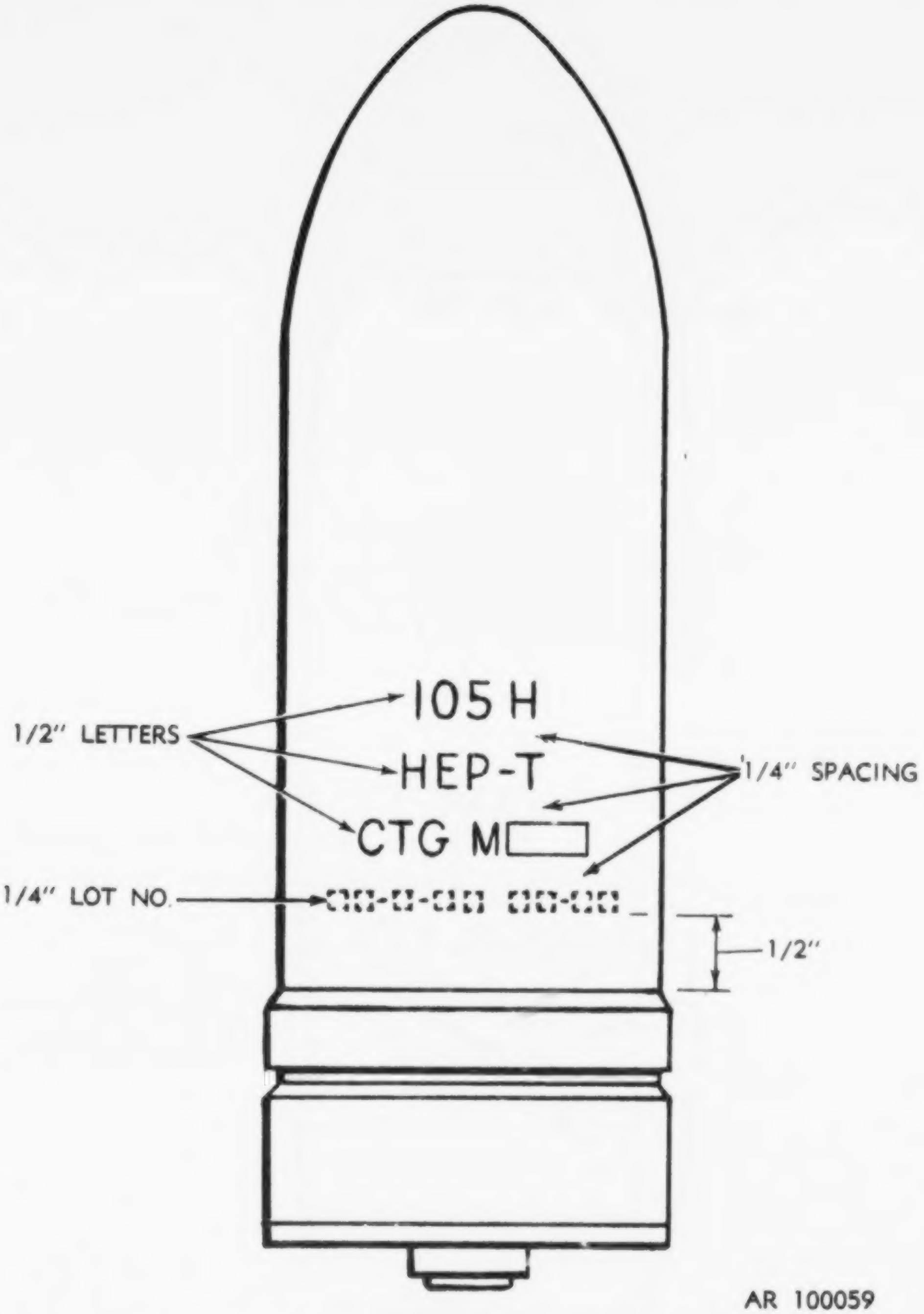
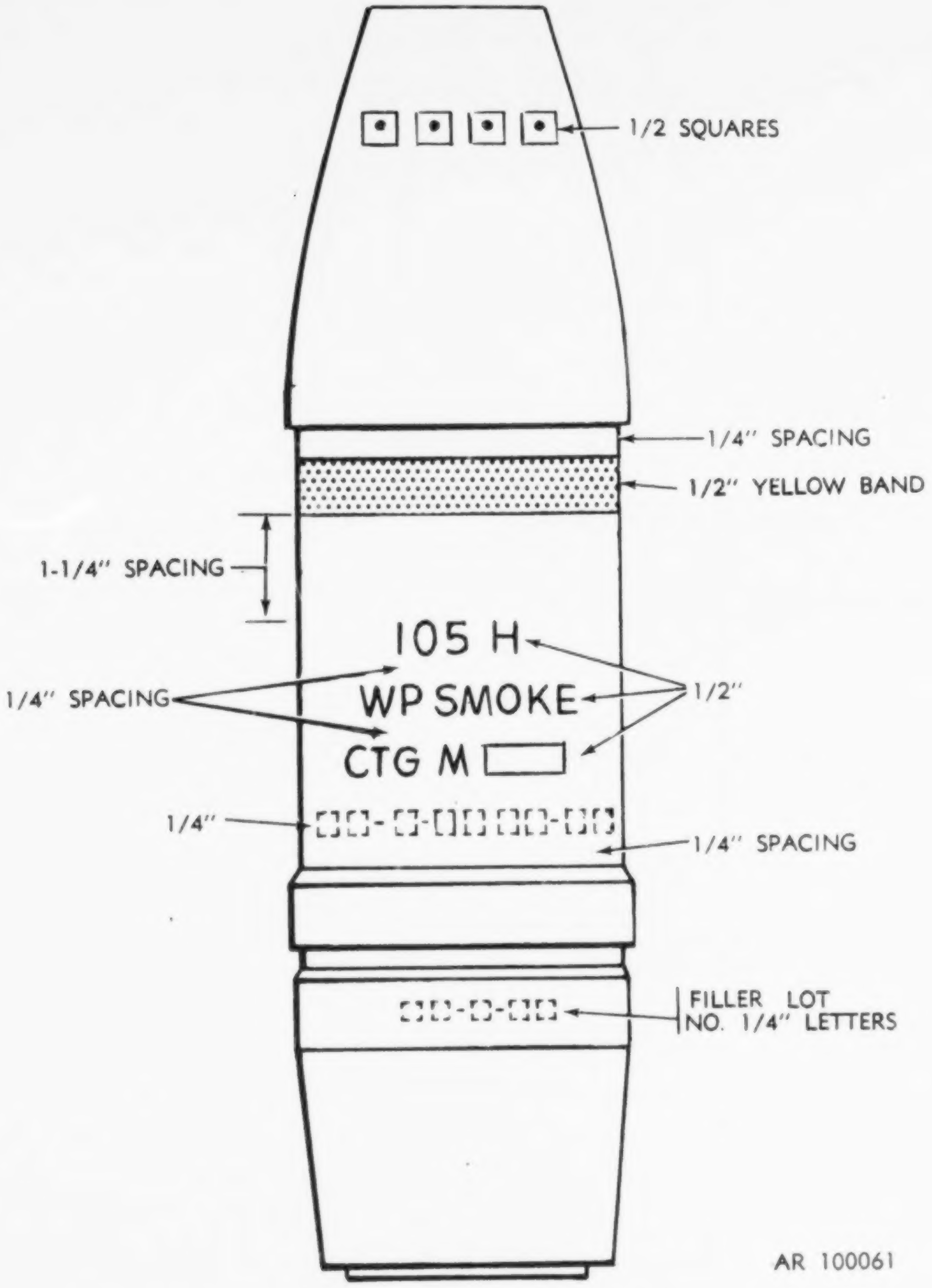
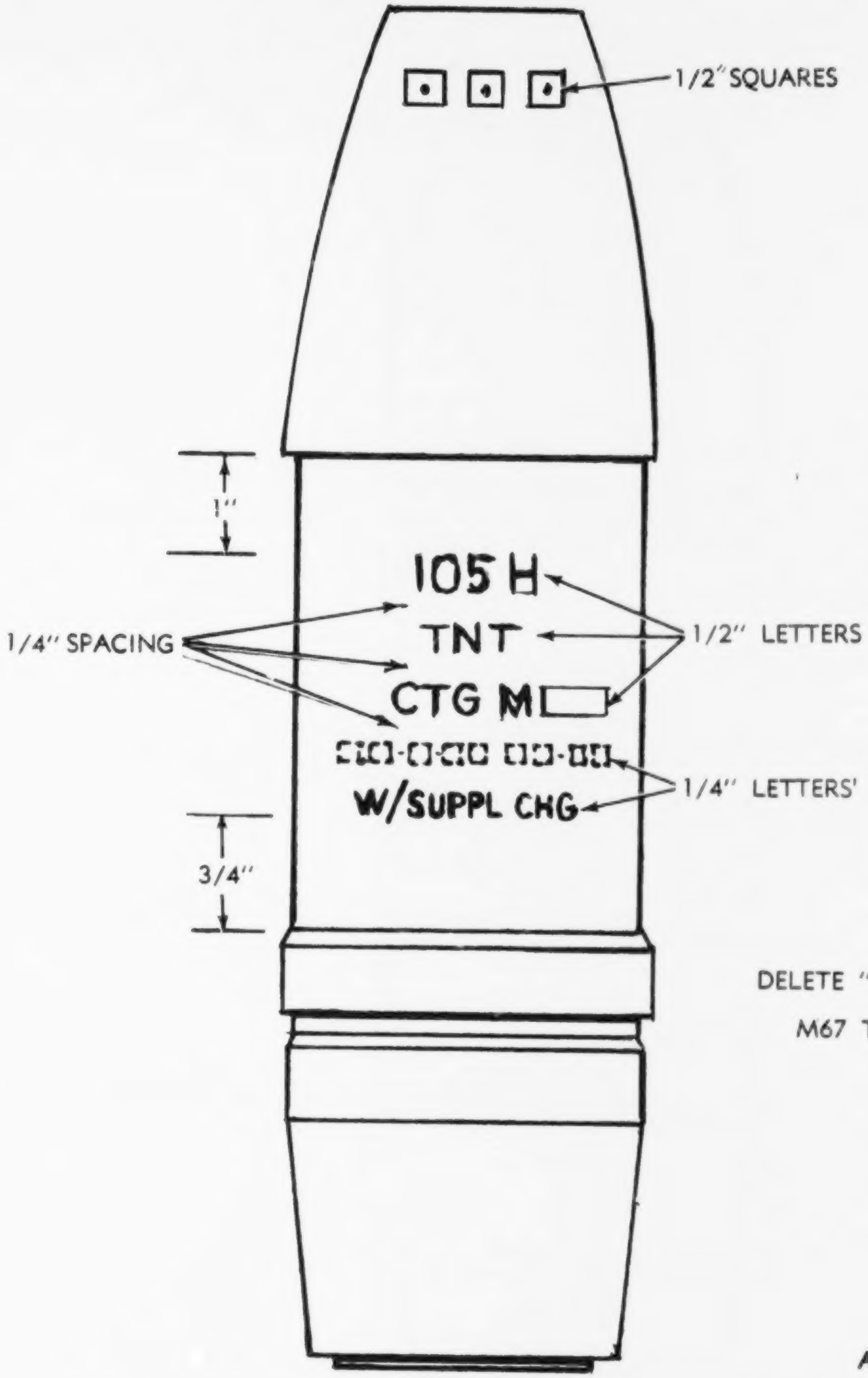

105 H
HEP-T
CTG M
1/2" LETTERS
1/4" SPACING
1/4" LOT NO.
1/2"
AR 100059

Figure D-38. Typical marking for projectile of 105-mm howitzer cartridge M327.


1/2 SQUARES
1/4" SPACING
1/2" YELLOW BAND
1-1/4" SPACING
105 H
WP SMOKE
CTG M
1/4" SPACING
1/2"
1/4"
1/4" SPACING
FILLER LOT
NO. 1/4" LETTERS

AR 100061

Figure D-39. Typical marking for projectile of 105-mm howitzer cartridge M60 series and M84 series.


1/2" SQUARES
1"
105 H
TNT
CTG M
W/SUPPL CHG
1/4" SPACING
1/2" LETTERS
1/4" LETTERS'
3/4"

DELETE "W/SUPPL CHG"
FOR
M67 TP-T & M444

AR 100062

Figure D-40. Typical marking for projectiles of 105-mm howitzer cartridges M1, M67, M413 and M444.

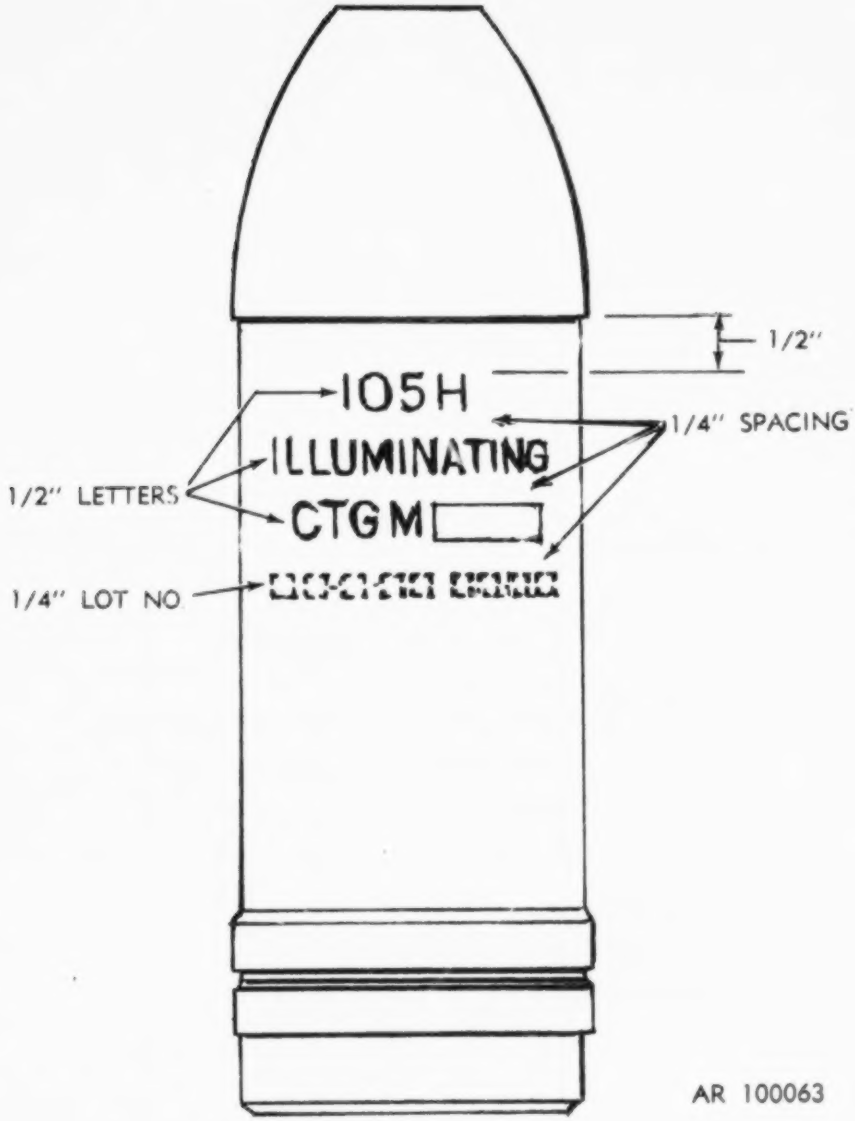
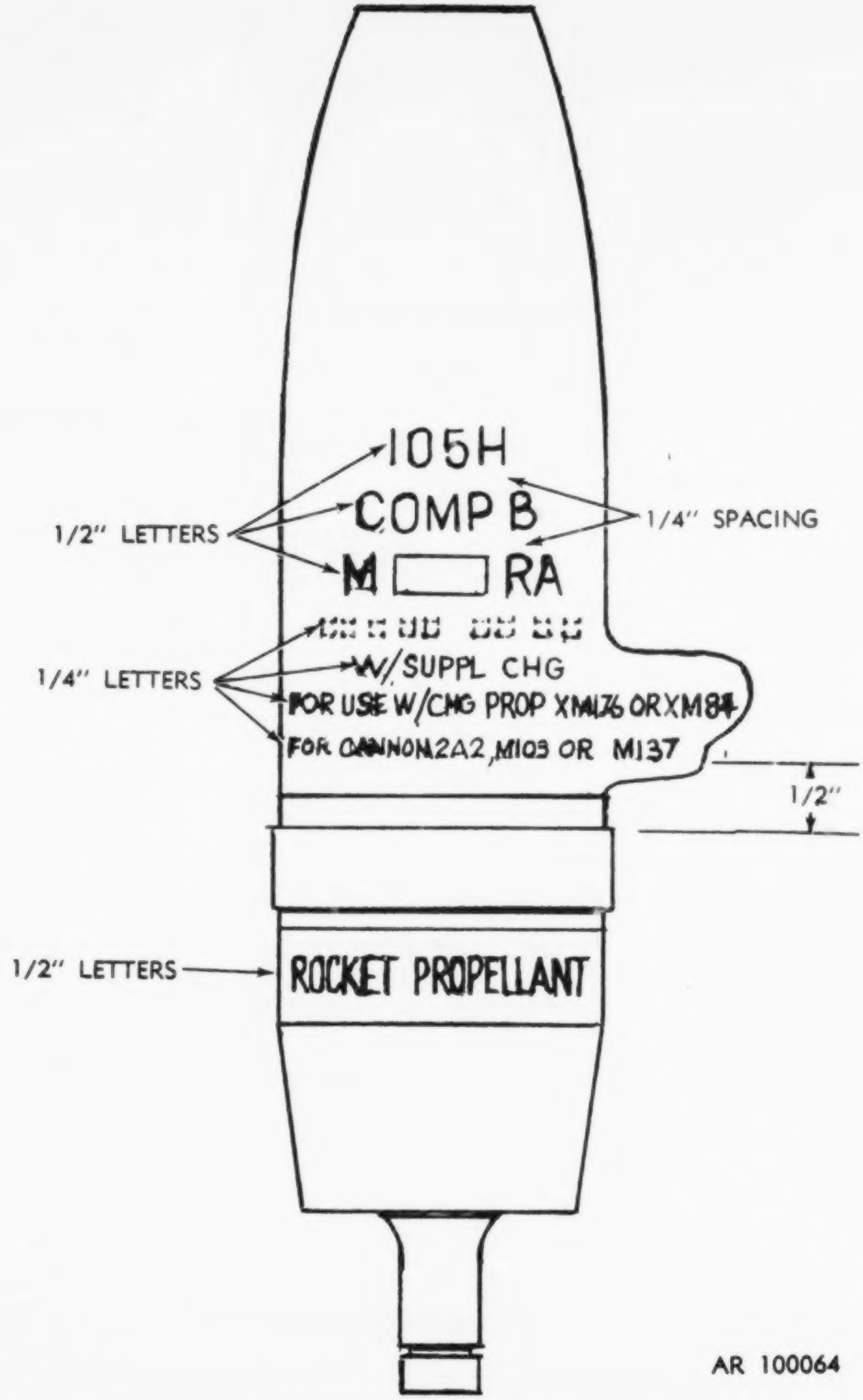
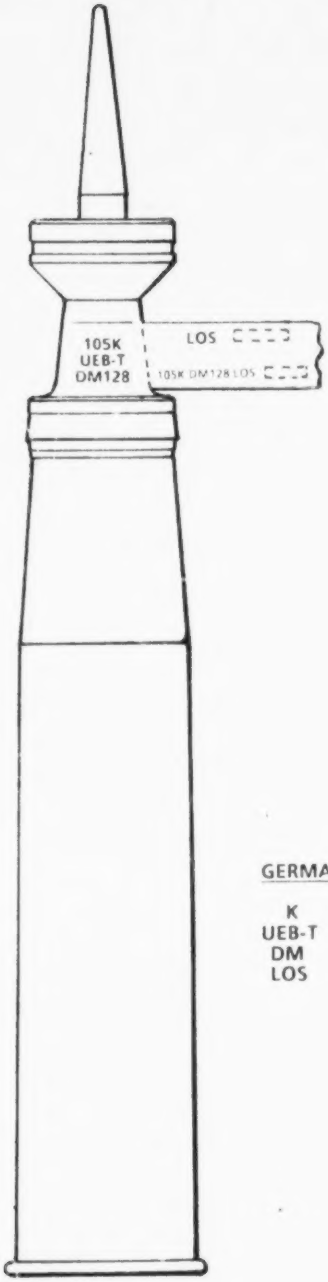

1/2"
105H
ILLUMINATING
CTG M
1/4" SPACING
1/2" LETTERS
1/4" LOT NO
AR 100063

Figure D-41. Typical marking for projectiles of 105-mm howitzer cartridge M314 series.


105H
COMP B
M RA
W/SUPPL CHG
FOR USE W/CHG PROP XM176 OR XM84
FOR CANNON M2A2, M103 OR M137
1/2" LETTERS
1/4" SPACING
1/4" LETTERS
1/2"
1/2" LETTERS
ROCKET PROPELLANT

AR 100064

Figure D-42. Typical marking for projectile of 105-mm howitzer cartridge M548.


105K
UEB-T
DM128
LOS
105K DM128 LOS

GERMAN	ENGLISH(MEANING)
K	CANNON
UEB-T	TPCSDS-T
DM	GERMAN MODEL
LOS	LOT

ARD 2769

Figure D-42.1. Typical marking for 105-mm gun cartridge, DM128.

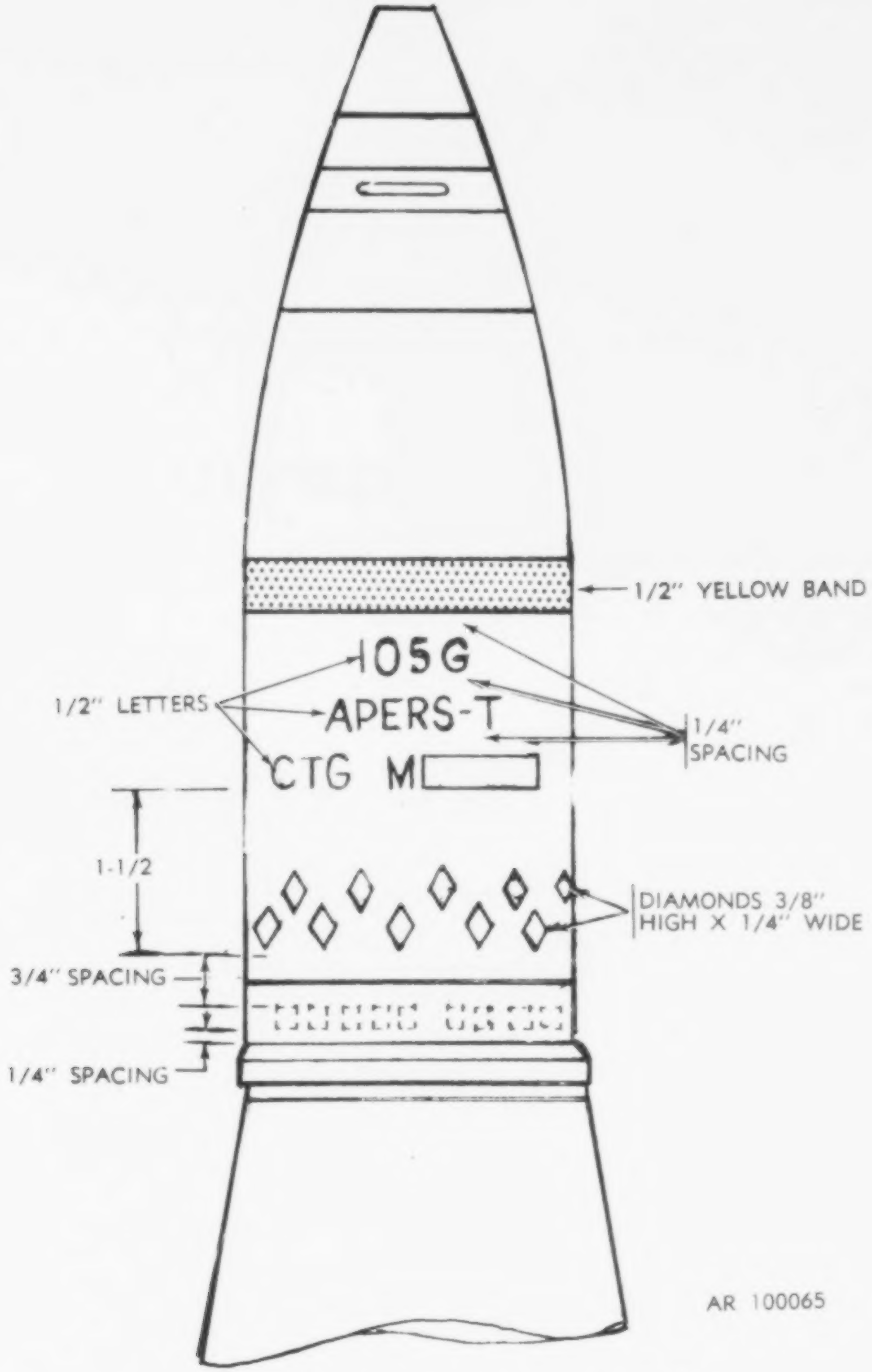

1/2" YELLOW BAND
105G
APERS-T
CTG M
1/2" LETTERS
1/4" SPACING
1-1/2
DIAMONDS 3/8" HIGH X 1/4" WIDE
3/4" SPACING
1/4" SPACING
AR 100065

Figure D-43. Typical marking for 105-mm gun cartridge XM494E3.

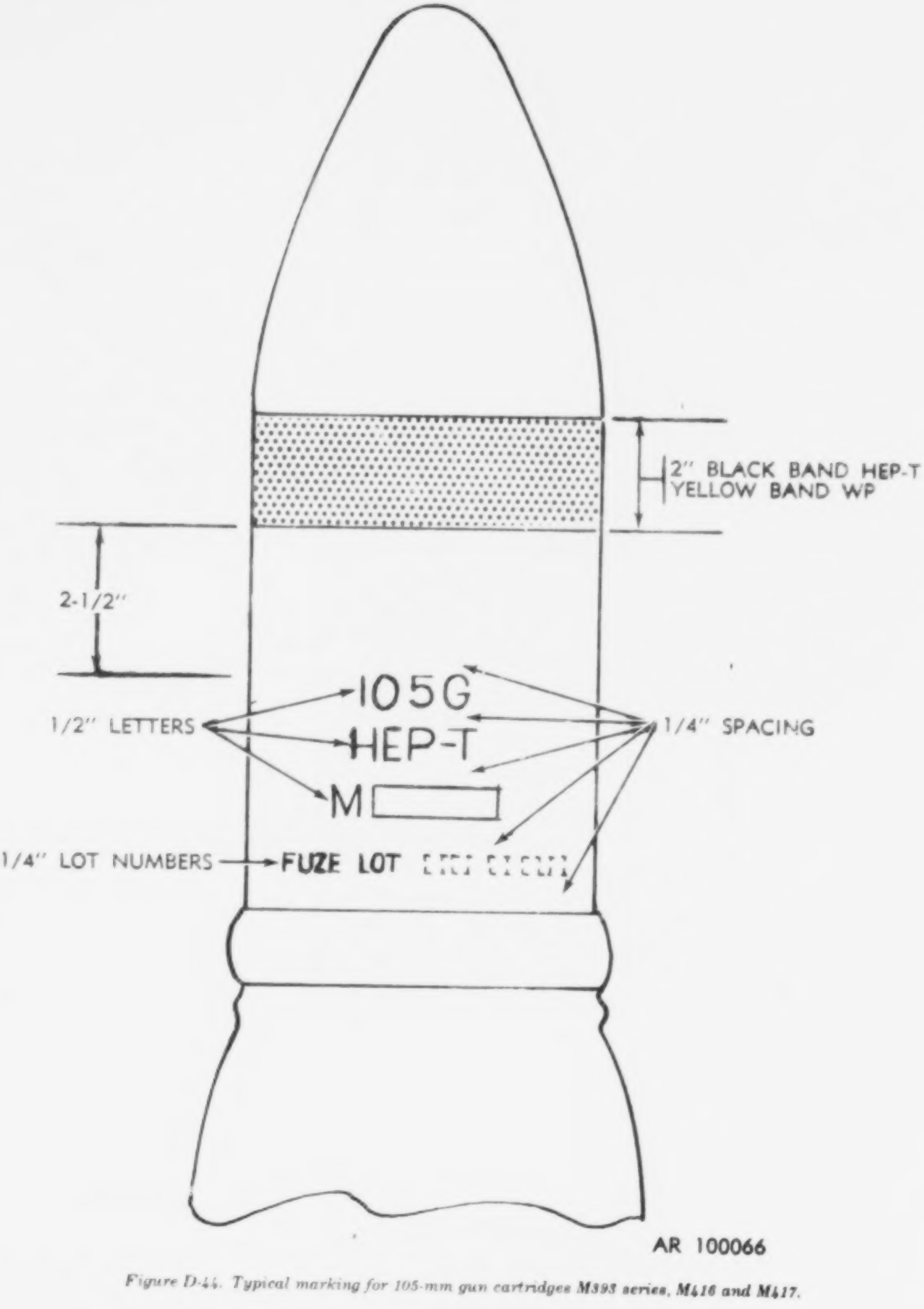

2" BLACK BAND HEP-T
YELLOW BAND WP
2-1/2"
105G
HEP-T
M
1/2" LETTERS
1/4" SPACING
1/4" LOT NUMBERS
FUZE LOT
AR 100066

Figure D-44. Typical marking for 105-mm gun cartridges M393 series, M416 and M417.

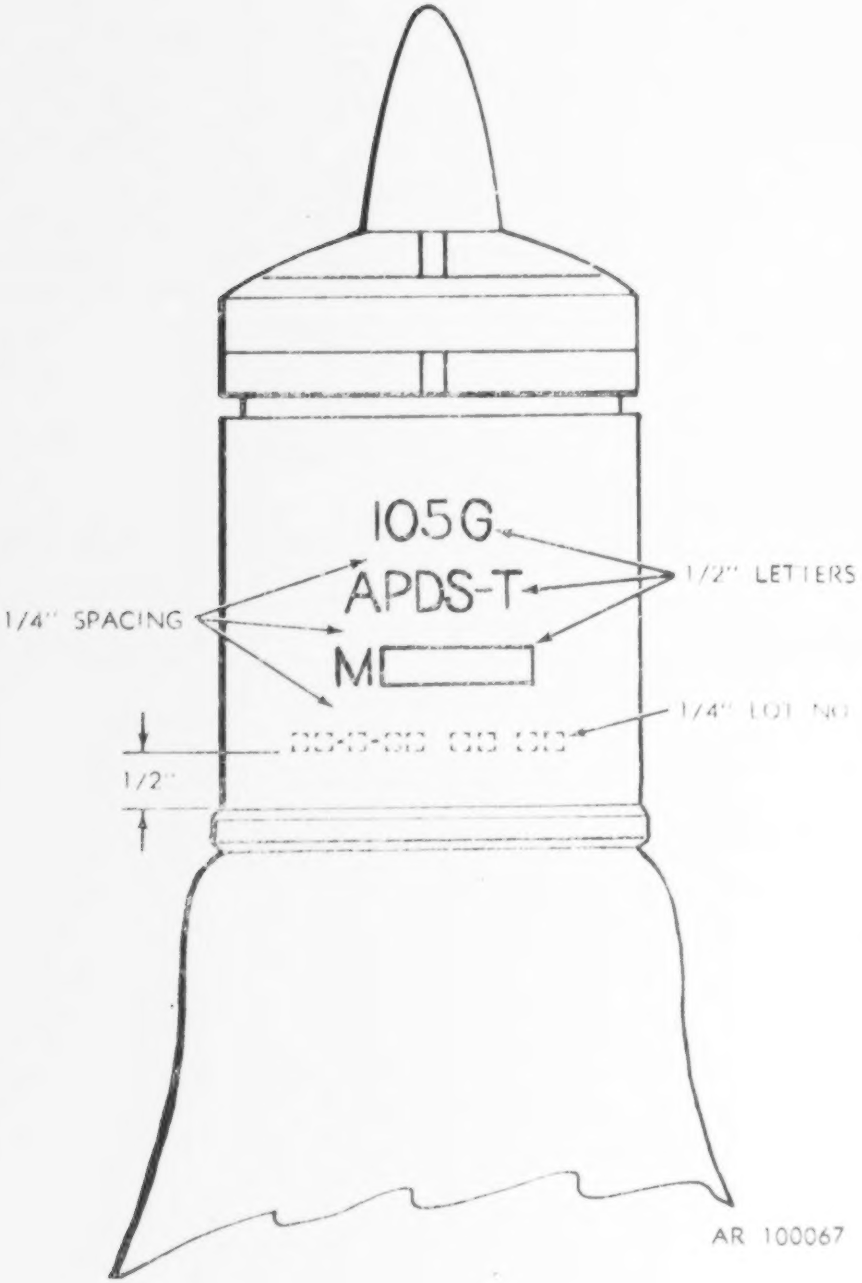

105G
APDS-T
M
1/2" LETTERS
1/4" SPACING
1/4" LOT NO
1/2"
AR 100067

Figure D-45. Typical marking for 105-mm gun cartridges M392 series and M724 series

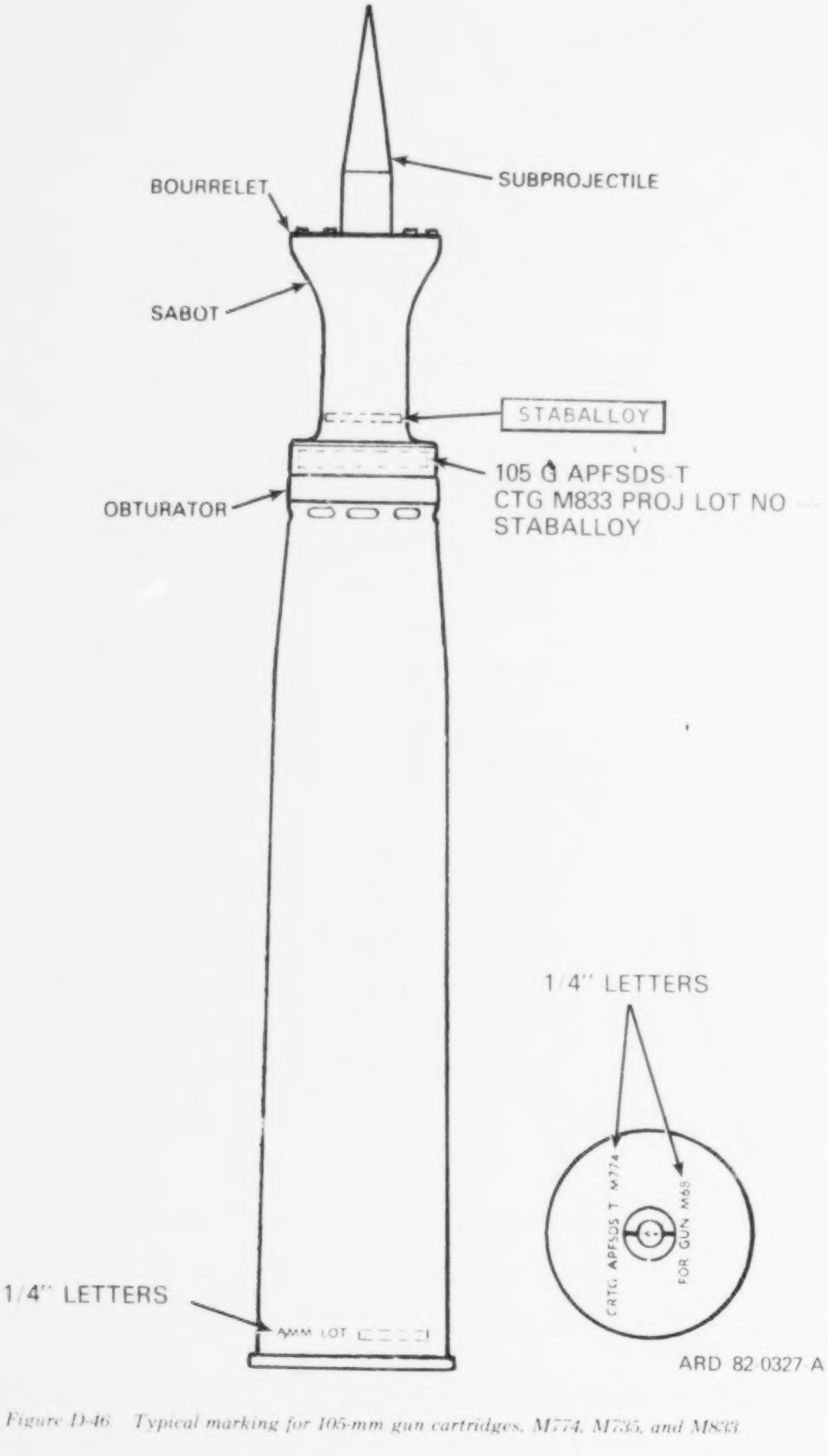

BOURRELET
SUBPROJECTILE
SABOT
STABALLOY
105 G APFSDS-T
CTG M833 PROJ LOT NO
STABALLOY
OBTURATOR
1/4" LETTERS
CRTG APFSDS T M774
FOR GUN M68
1/4" LETTERS
AMM LOT
ARD 82-0327-A

Figure D-46. Typical marking for 105-mm gun cartridges, M774, M735, and M833.

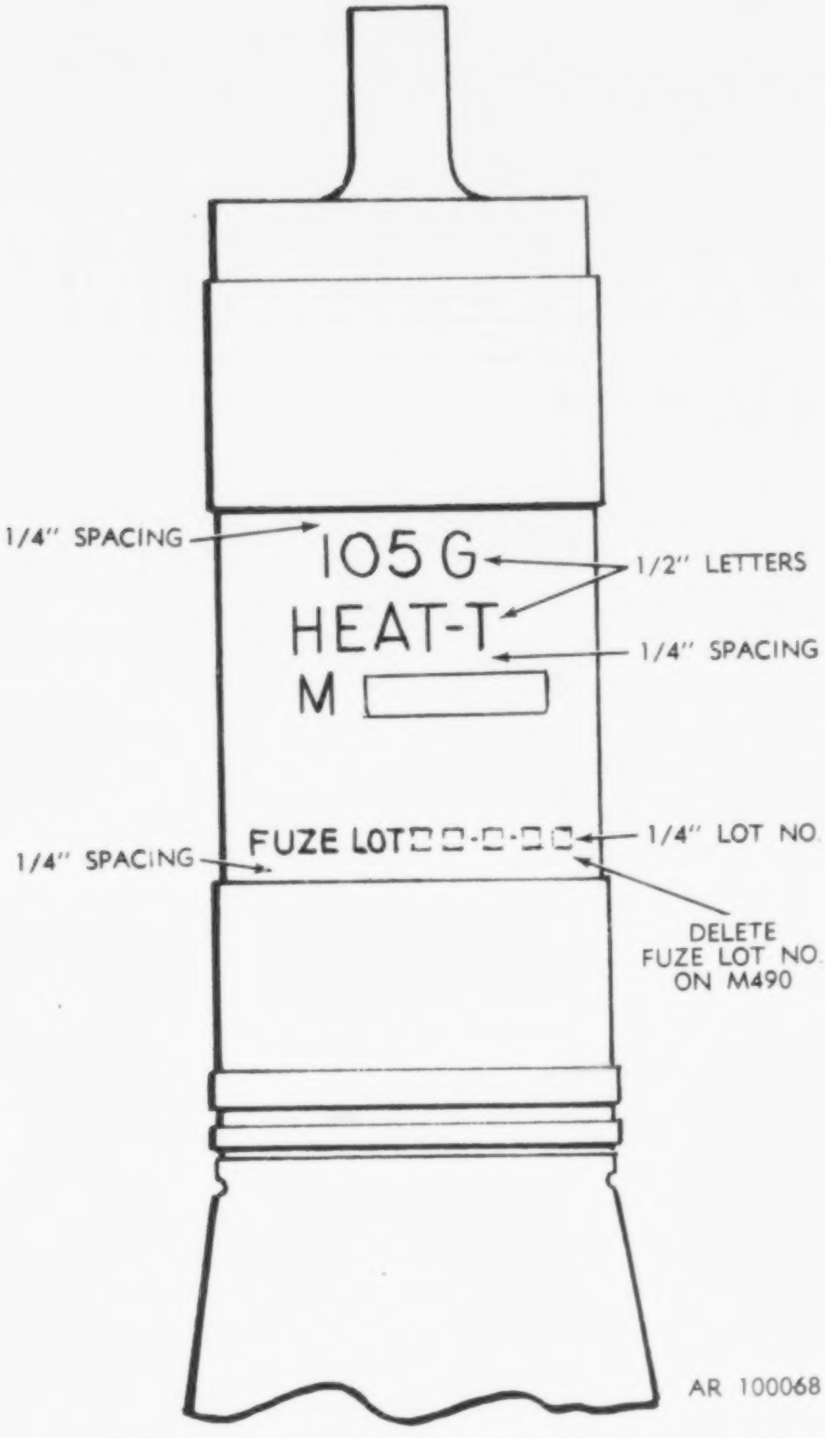

1/4" SPACING
105 G
1/2" LETTERS
HEAT-T
1/4" SPACING
M
FUZE LOT ☐☐-☐-☐☐
1/4" LOT NO.
1/4" SPACING
DELETE FUZE LOT NO. ON M490
AR 100068

Figure D-47. Typical marking for 105-mm gun cartridges M456 series and M490.

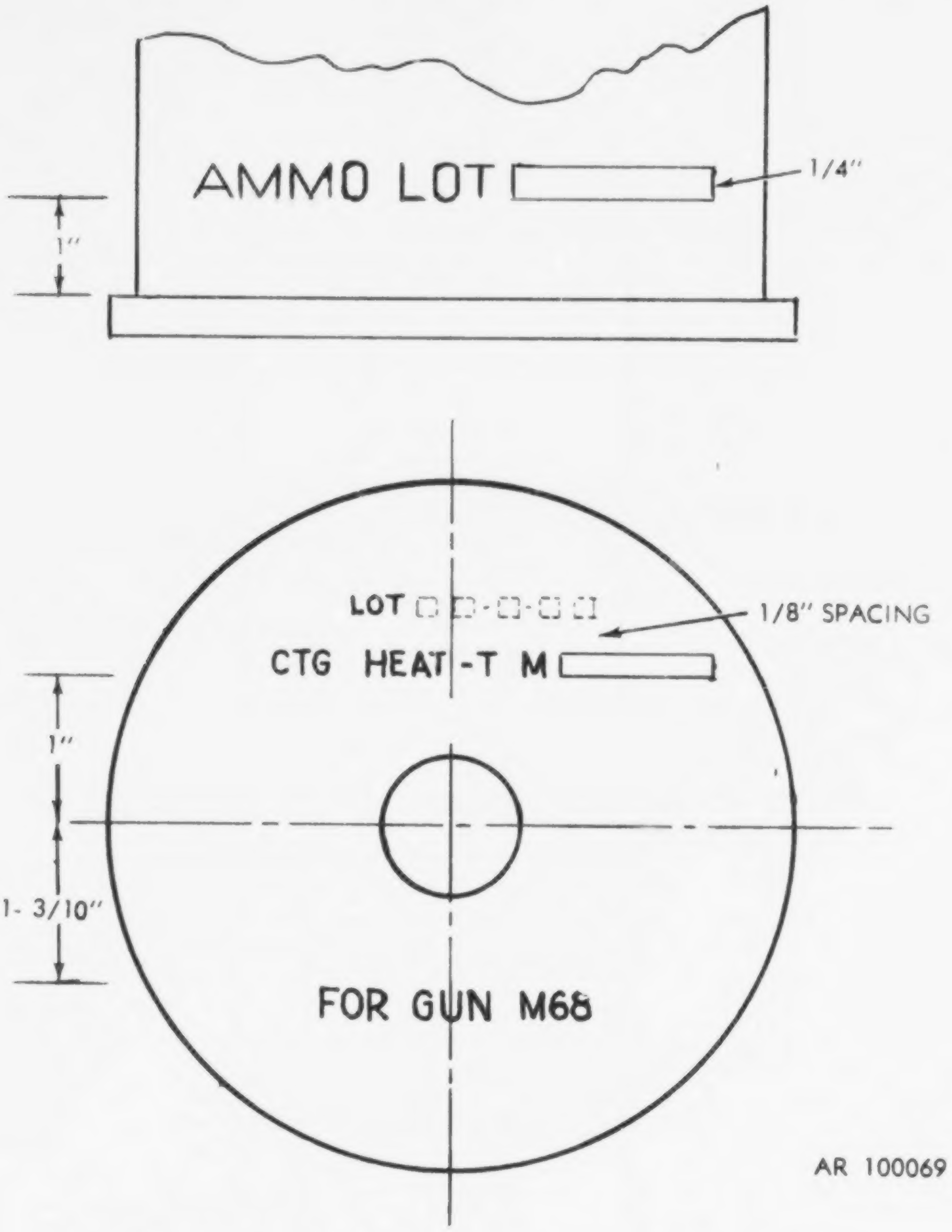

AMMO LOT
1/4"
1"
LOT
1/8" SPACING
CTG HEAT-T M
1"
1- 3/10"
FOR GUN M68
AR 100069

Figure D-48. Typical marking for cartridge case on 105-mm gun cartridge M456 series.

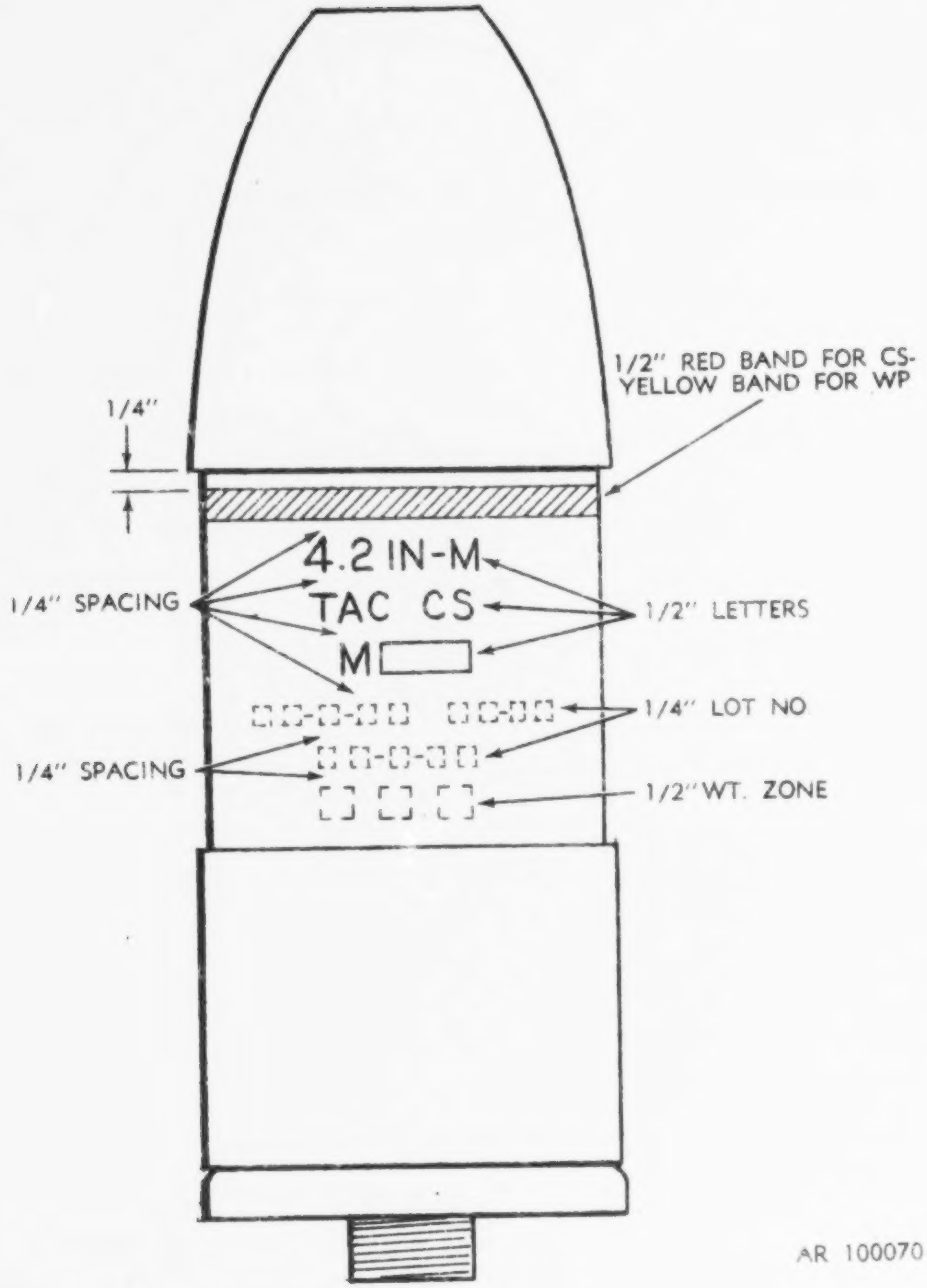

1/2" RED BAND FOR CS-
YELLOW BAND FOR WP
1/4"
4.2 IN-M
TAC CS
M
1/4" SPACING
1/2" LETTERS
1/4" LOT NO.
1/4" SPACING
1/2" WT. ZONE
AR 100070

Figure D-49. Typical marking for 4.2-in mortar cartridges M2, M630 and M328A1.

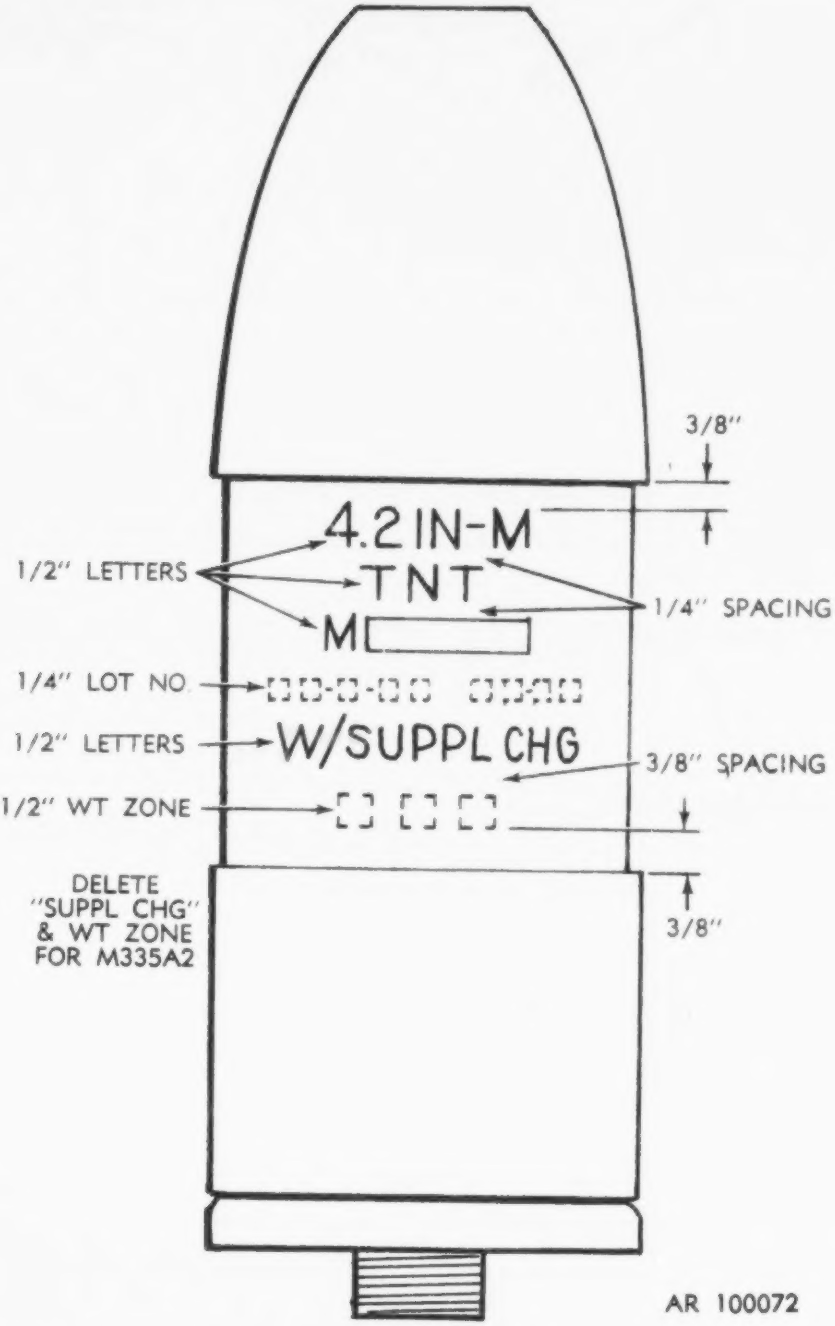

3/8"
4.2 IN-M
1/2" LETTERS
TNT
1/4" SPACING
M
1/4" LOT NO.
1/2" LETTERS
W/SUPPL CHG
3/8" SPACING
1/2" WT ZONE
DELETE
"SUPPL CHG"
& WT ZONE
FOR M335A2
3/8"
AR 100072

Figure D-50. Typical marking for 4.2-in mortar cartridges M3 series, M329 series and M335A2.

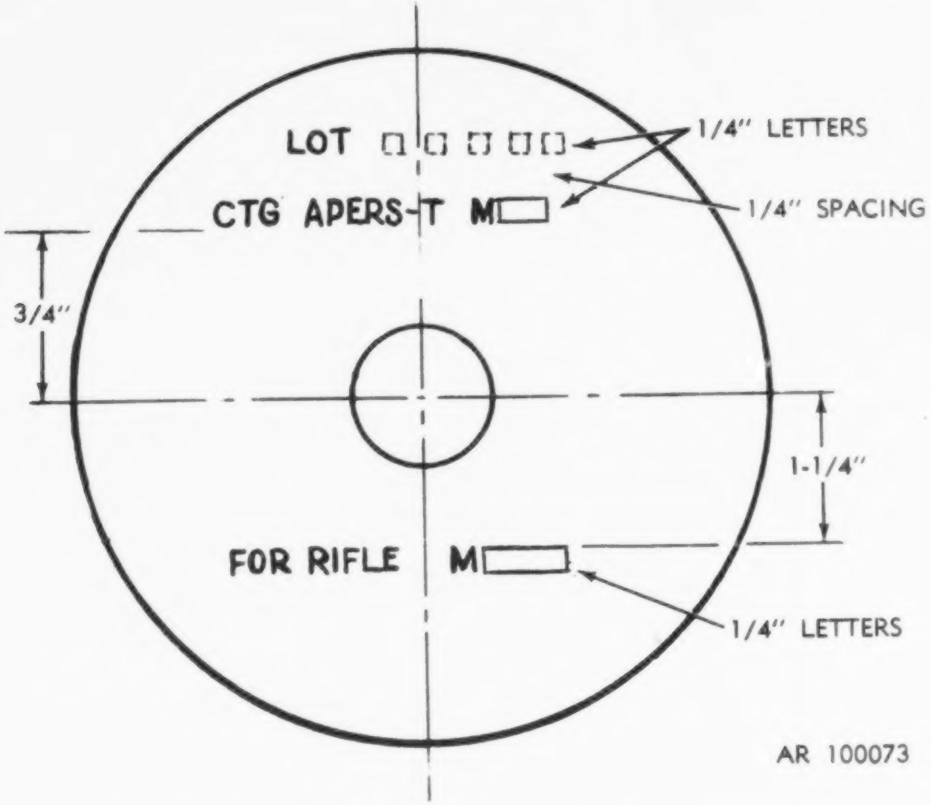

LOT
CTG APERS-T M
FOR RIFLE M
1/4" LETTERS
1/4" SPACING
3/4"
1-1/4"
1/4" LETTERS
AR 100073

Figure D-51. Typical marking for cartridge case on 106-mm rifle cartridge M581.

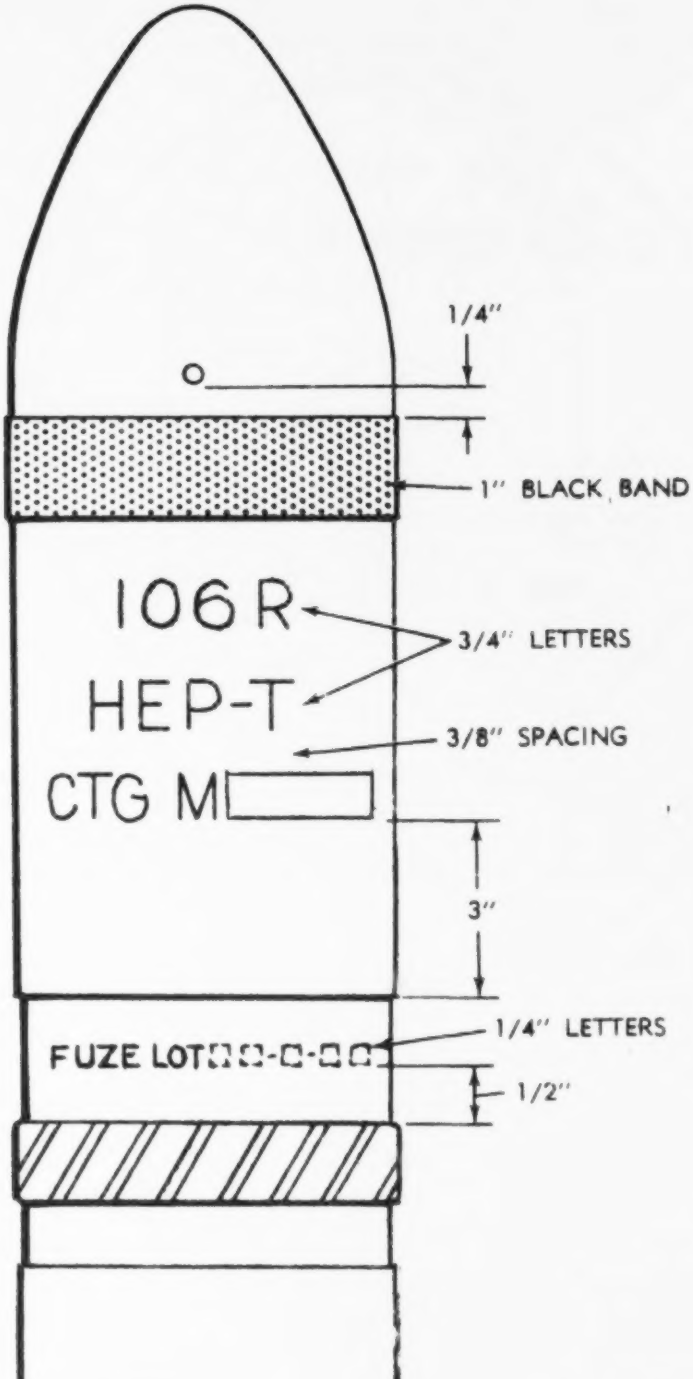

1/4"
1" BLACK BAND
106R
HEP-T
CTG M
3/4" LETTERS
3/8" SPACING
3"
FUZE LOT
1/4" LETTERS
1/2"
AR 100074

Figure D-52. Typical marking for 106-mm rifle cartridge M346A1.

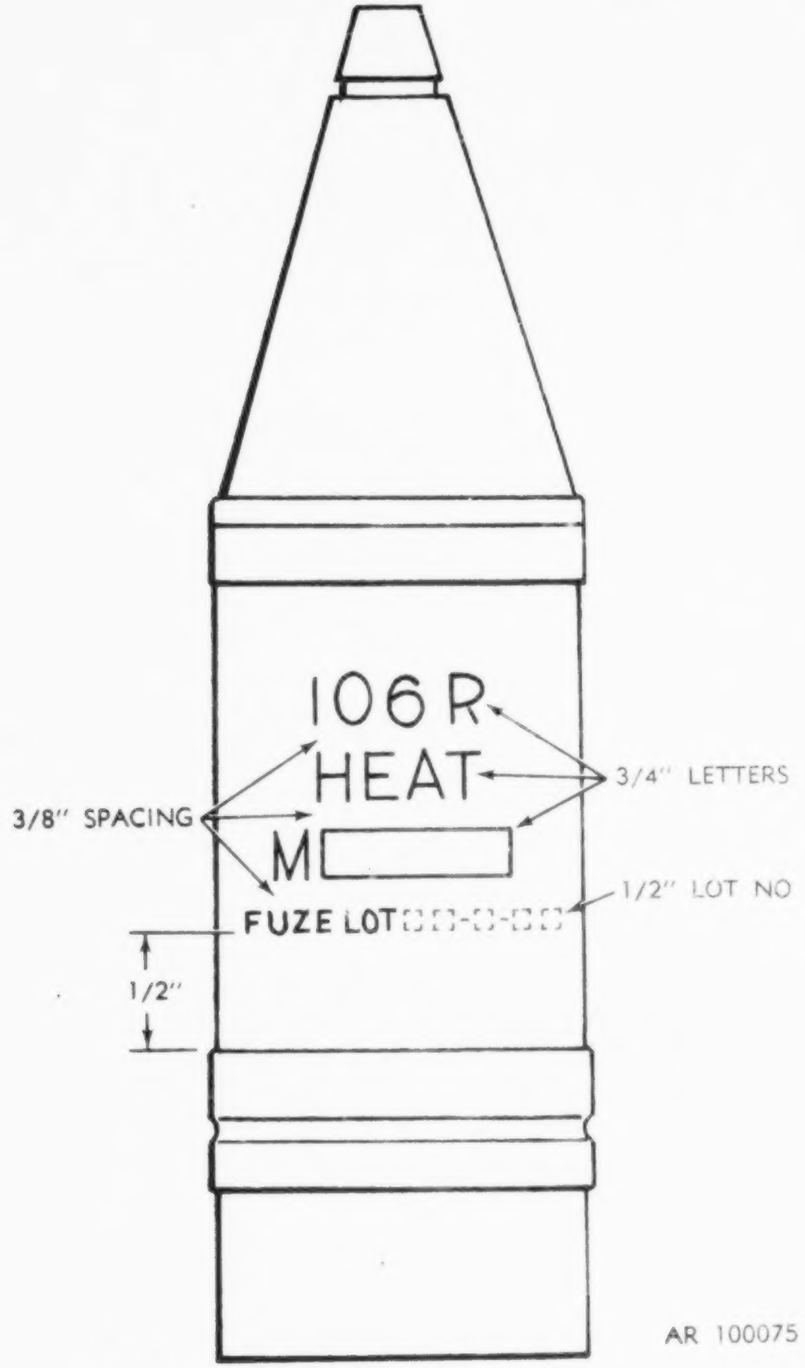

106 R
HEAT
M
FUZE LOT
3/4" LETTERS
3/8" SPACING
1/2" LOT NO
1/2"
AR 100075

Figure D-58. Typical marking for 106-mm rifle cartridge M344A1.

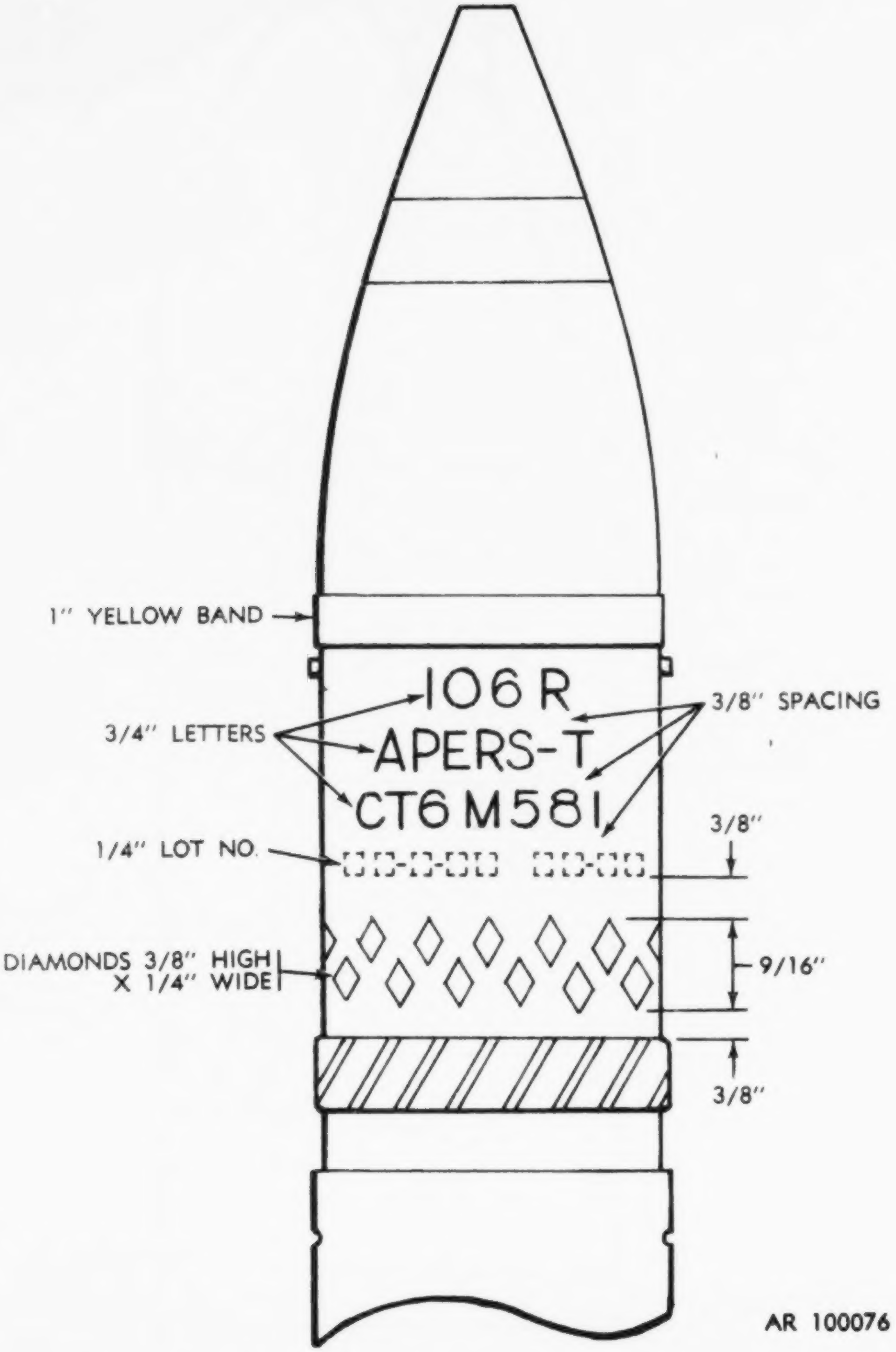

1" YELLOW BAND
3/4" LETTERS
106 R
APERS-T
CT6 M581
3/8" SPACING
1/4" LOT NO.
3/8"
DIAMONDS 3/8" HIGH X 1/4" WIDE
9/16"
3/8"
AR 100076

Figure D-54. Typical marking for 106-mm rifle cartridge M581.

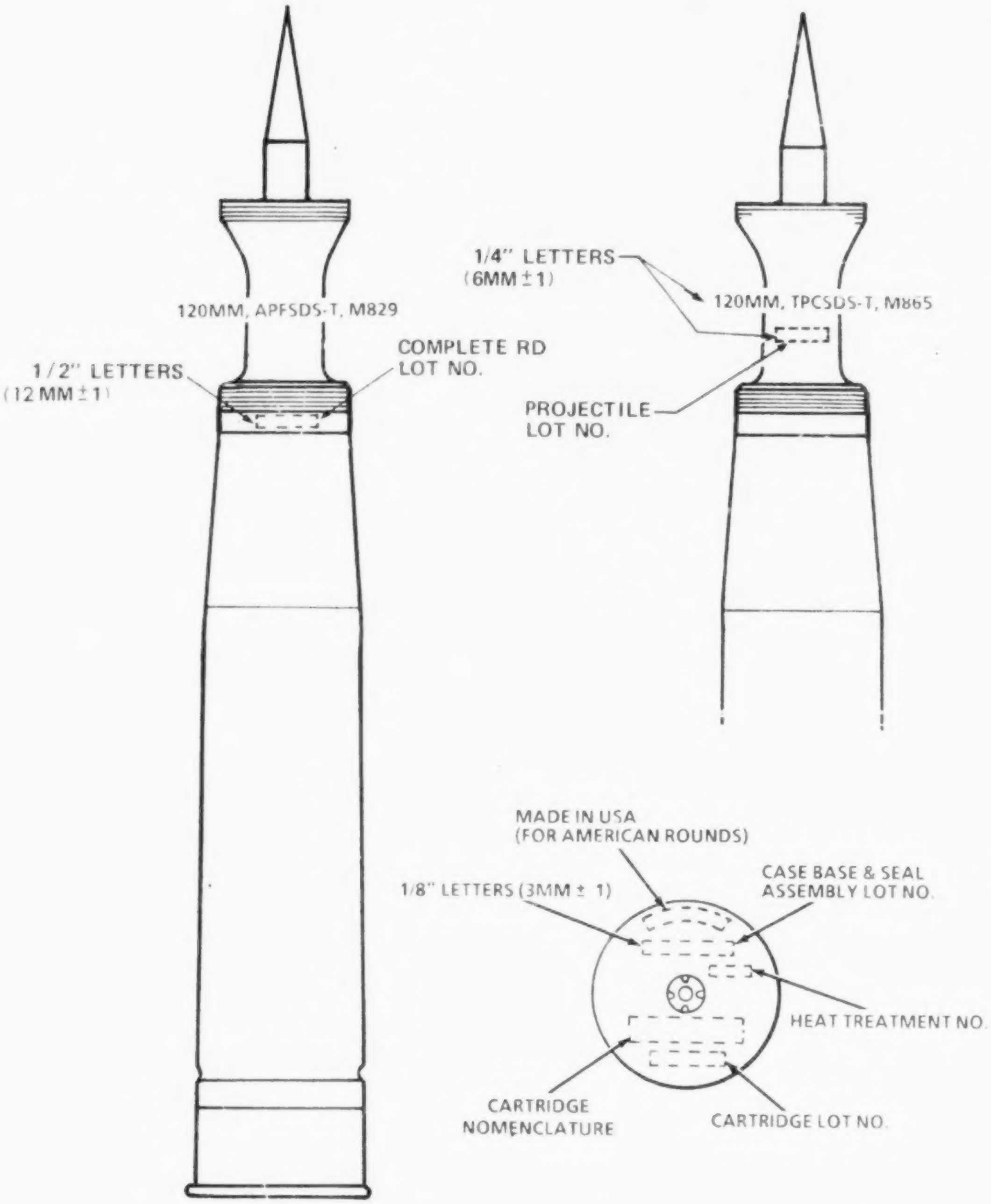

120MM, APFSDS-T, M829
1/2" LETTERS
(12 MM ± 1)
COMPLETE RD
LOT NO.
1/4" LETTERS
(6MM ± 1)
120MM, TPCSDS-T, M865
PROJECTILE
LOT NO.
MADE IN USA
(FOR AMERICAN ROUNDS)
1/8" LETTERS (3MM ± 1)
CASE BASE & SEAL
ASSEMBLY LOT NO.
HEAT TREATMENT NO.
CARTRIDGE
NOMENCLATURE
CARTRIDGE LOT NO.
ARD-81-0042-F

Figure D-54.1. Typical marking for 120-mm gun cartridges, M829 and M865.

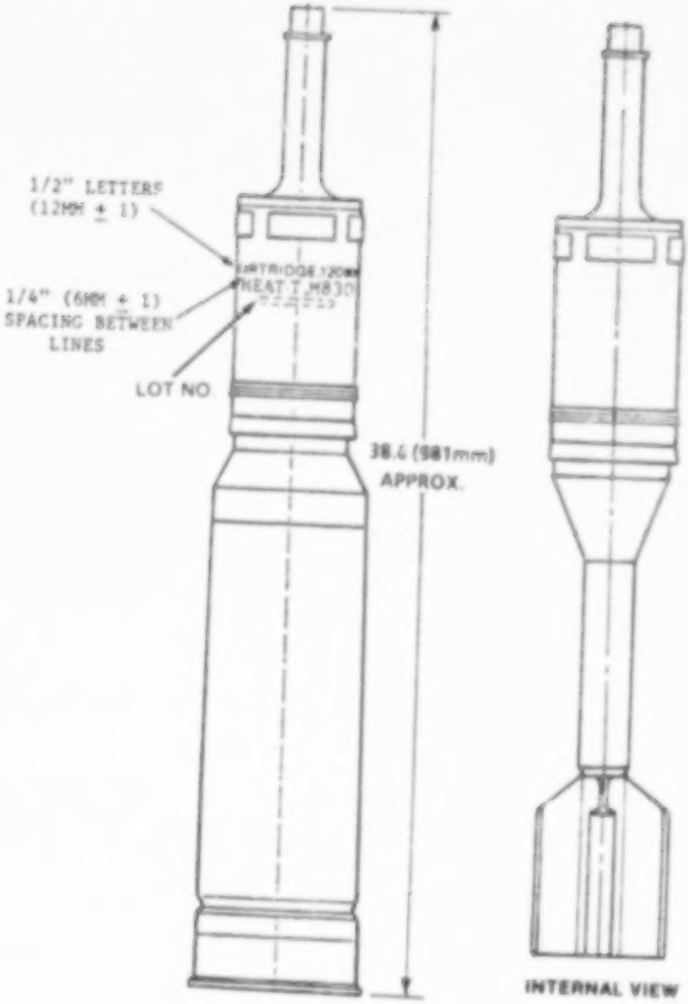
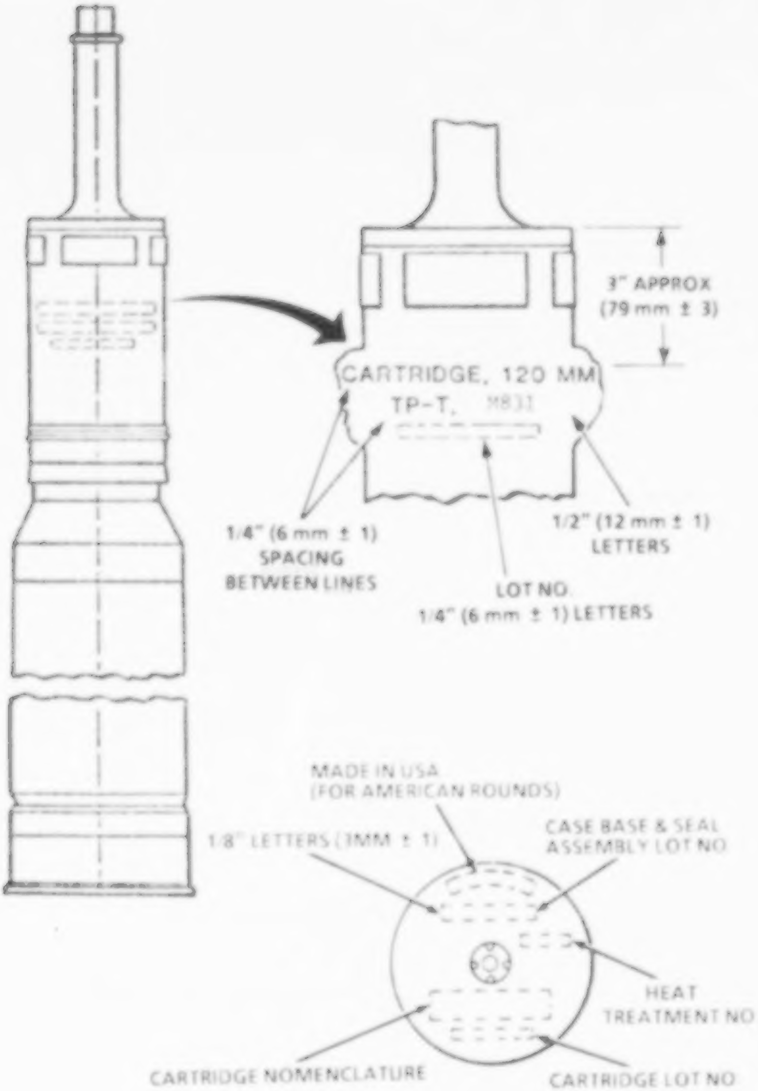

1/2" LETTERS (12MM ± 1)
CARTRIDGE 120MM
HEAT-T M830
1/4" (6MM ± 1) SPACING BETWEEN LINES
LOT NO
38.6 (981mm) APPROX.
INTERNAL VIEW
ARD-2772

Figure D-54.2. Typical marking for 120-mm gun cartridge, M830.


3" APPROX
(79 mm ± 3)
CARTRIDGE, 120 MM
TP-T, M831
1/4" (6 mm ± 1)
SPACING
BETWEEN LINES
1/2" (12 mm ± 1)
LETTERS
LOT NO
1/4" (6 mm ± 1) LETTERS
MADE IN USA
(FOR AMERICAN ROUNDS)
1/8" LETTERS (3MM ± 1)
CASE BASE & SEAL
ASSEMBLY LOT NO
HEAT
TREATMENT NO
CARTRIDGE NOMENCLATURE
CARTRIDGE LOT NO

ARD 81-0045-C

Figure D-54.3. Typical marking for 120-mm gun cartridge, M831.

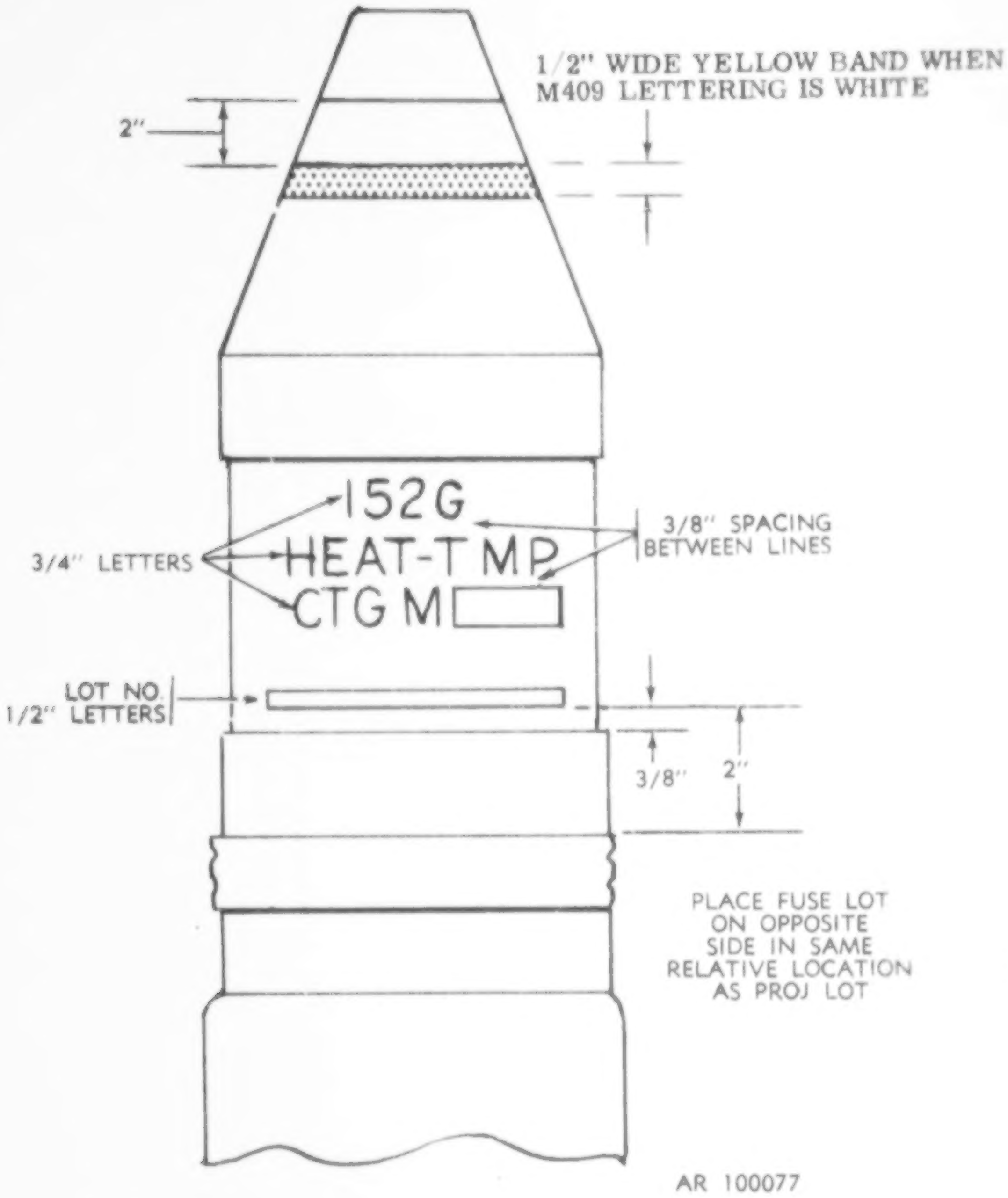
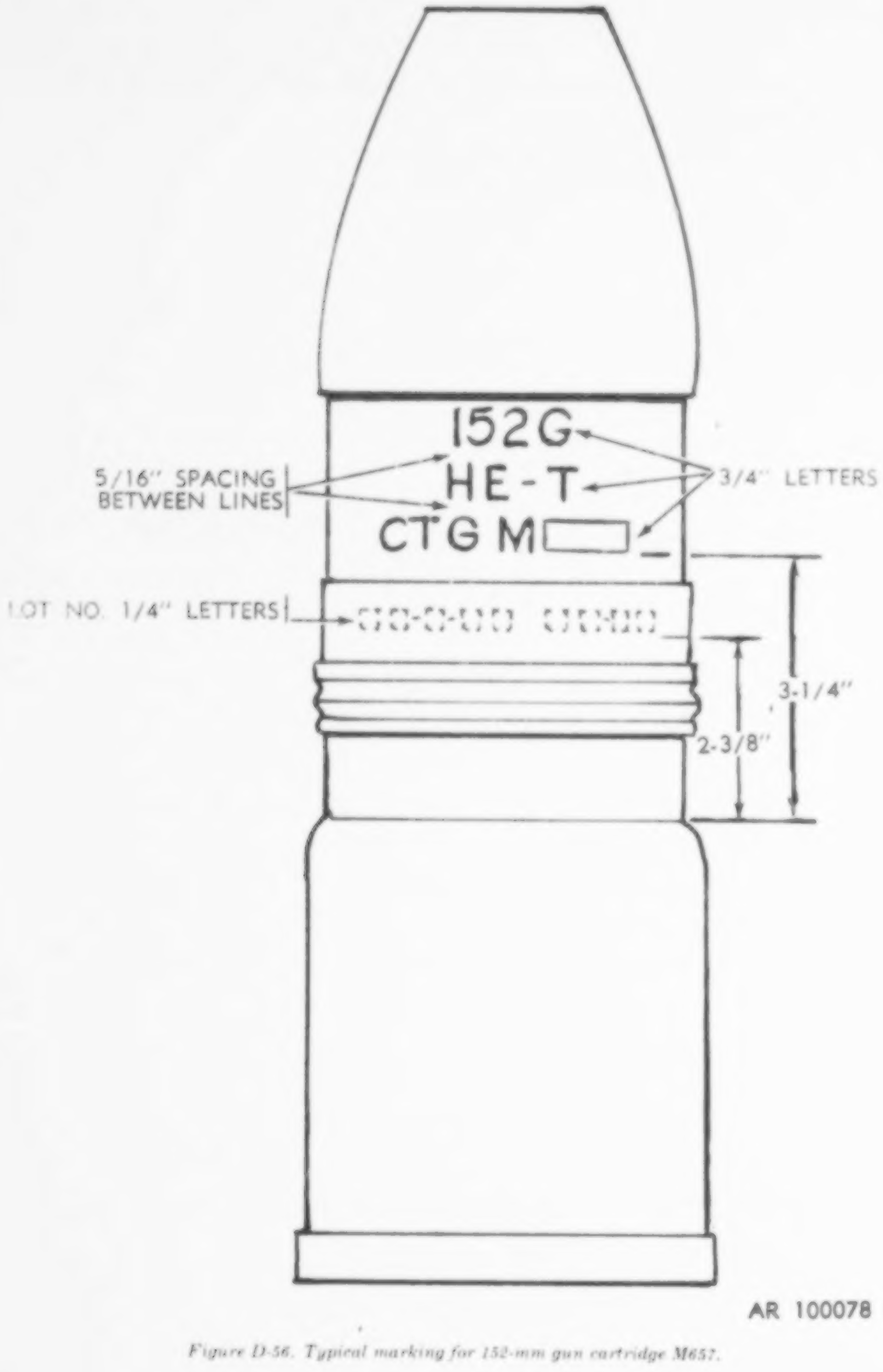

1/2" WIDE YELLOW BAND WHEN
M409 LETTERING IS WHITE
2"
152G
HEAT-T MP
CTG M
3/4" LETTERS
3/8" SPACING
BETWEEN LINES
LOT NO.
1/2" LETTERS
3/8"
2"
PLACE FUSE LOT
ON OPPOSITE
SIDE IN SAME
RELATIVE LOCATION
AS PROJ LOT
AR 100077

Figure D-55. Typical marking for 152-mm gun cartridges M409 series and M411 series.


152G
HE-T
CTG M
5/16" SPACING BETWEEN LINES
3/4" LETTERS
LOT NO. 1/4" LETTERS
3-1/4"
2-3/8"

AR 100078

Figure D-56. Typical marking for 152-mm gun cartridge M657.

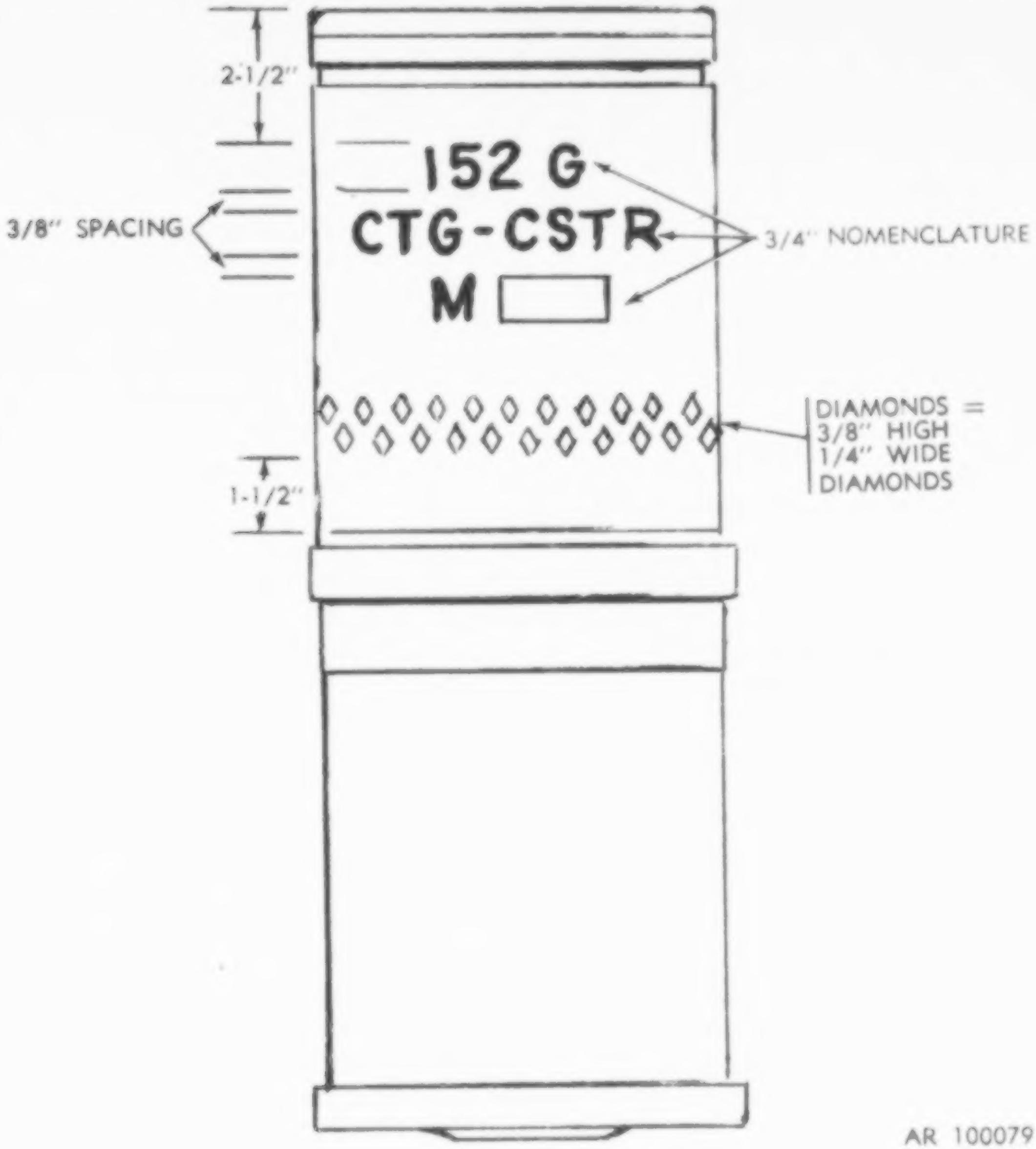

2-1/2"
152 G
CTG-CSTR
M
3/8" SPACING
3/4" NOMENCLATURE
DIAMONDS =
3/8" HIGH
1/4" WIDE
DIAMONDS
1-1/2"
AR 100079

Figure D-57. Typical marking for 152-mm gun cartridge M625.

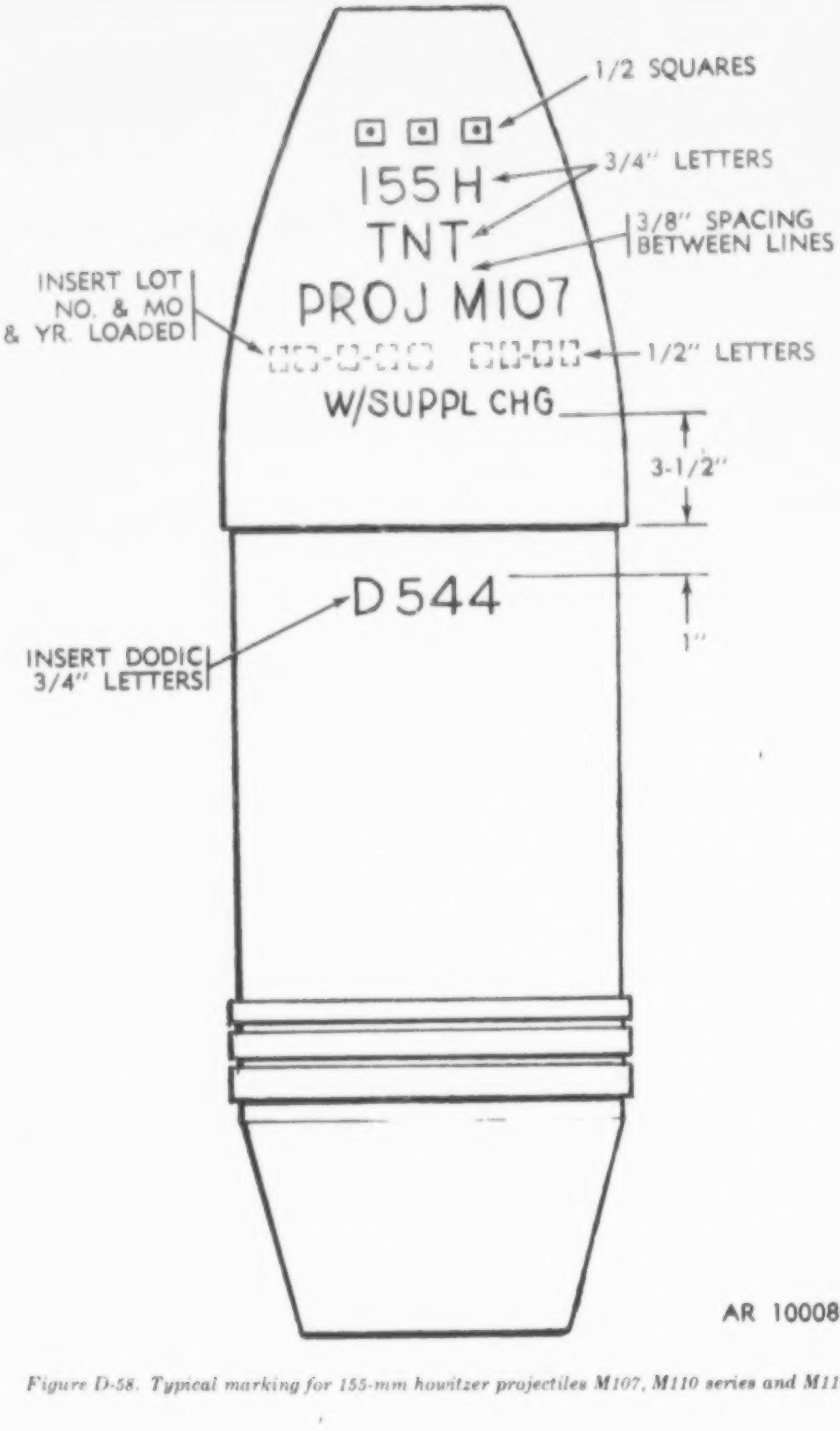

1/2 SQUARES
3/4" LETTERS
155 H
TNT
3/8" SPACING BETWEEN LINES
PROJ M107
INSERT LOT NO. & MO & YR. LOADED
1/2" LETTERS
W/SUPPL CHG
3-1/2"
D544
1"
INSERT DODIC 3/4" LETTERS
AR 100080

Figure D-58. Typical marking for 155-mm howitzer projectiles M107, M110 series and M116 series.

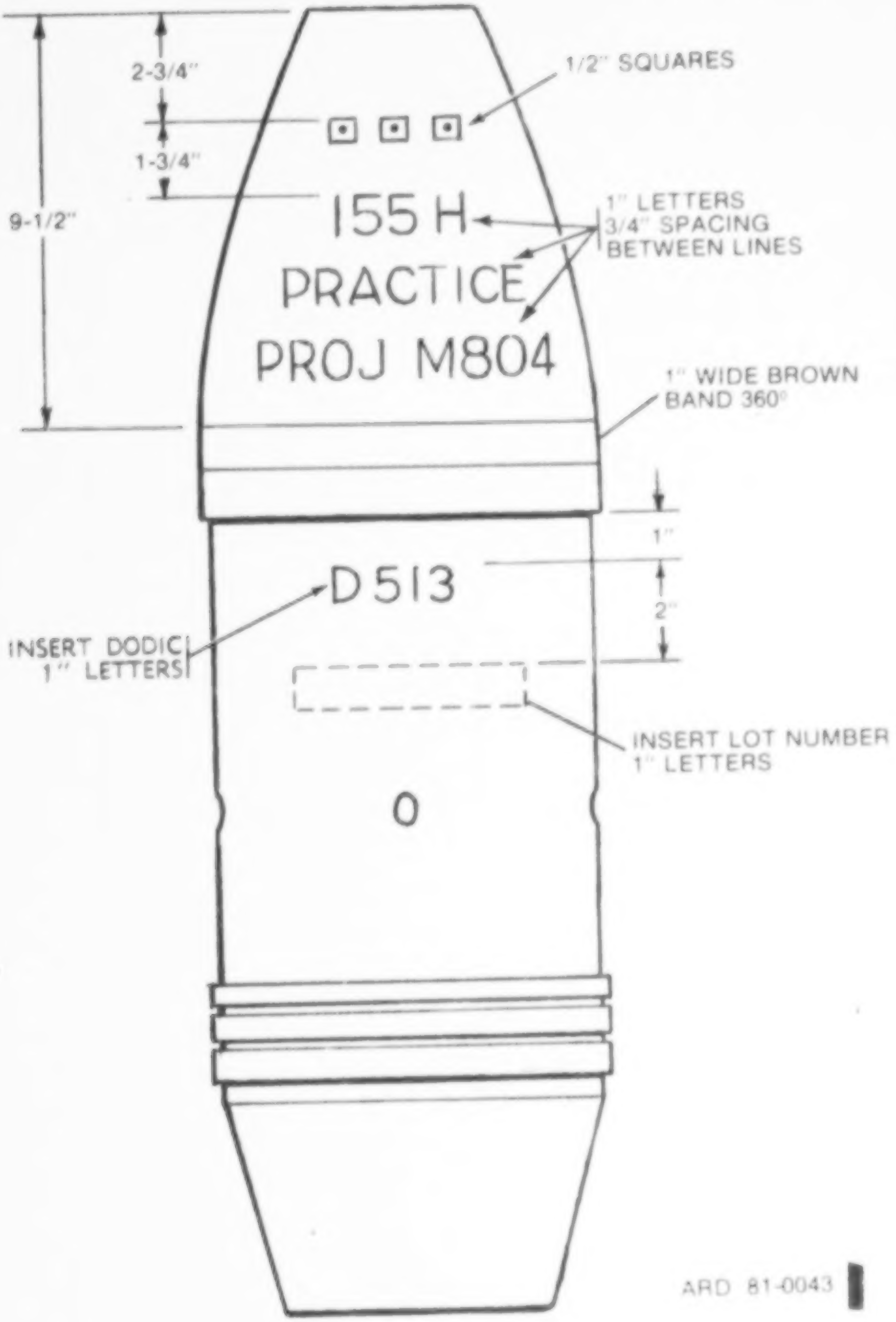

2-3/4"
1/2" SQUARES
1-3/4"
9-1/2"
155 H
1" LETTERS
3/4" SPACING
BETWEEN LINES
PRACTICE
PROJ M804
1" WIDE BROWN
BAND 360°
1"
D513
2"
INSERT DODIC
1" LETTERS
INSERT LOT NUMBER
1" LETTERS
0
ARD 81-0043

Figure D-58.1 Typical marking for 155-mm howitzer projectile M804

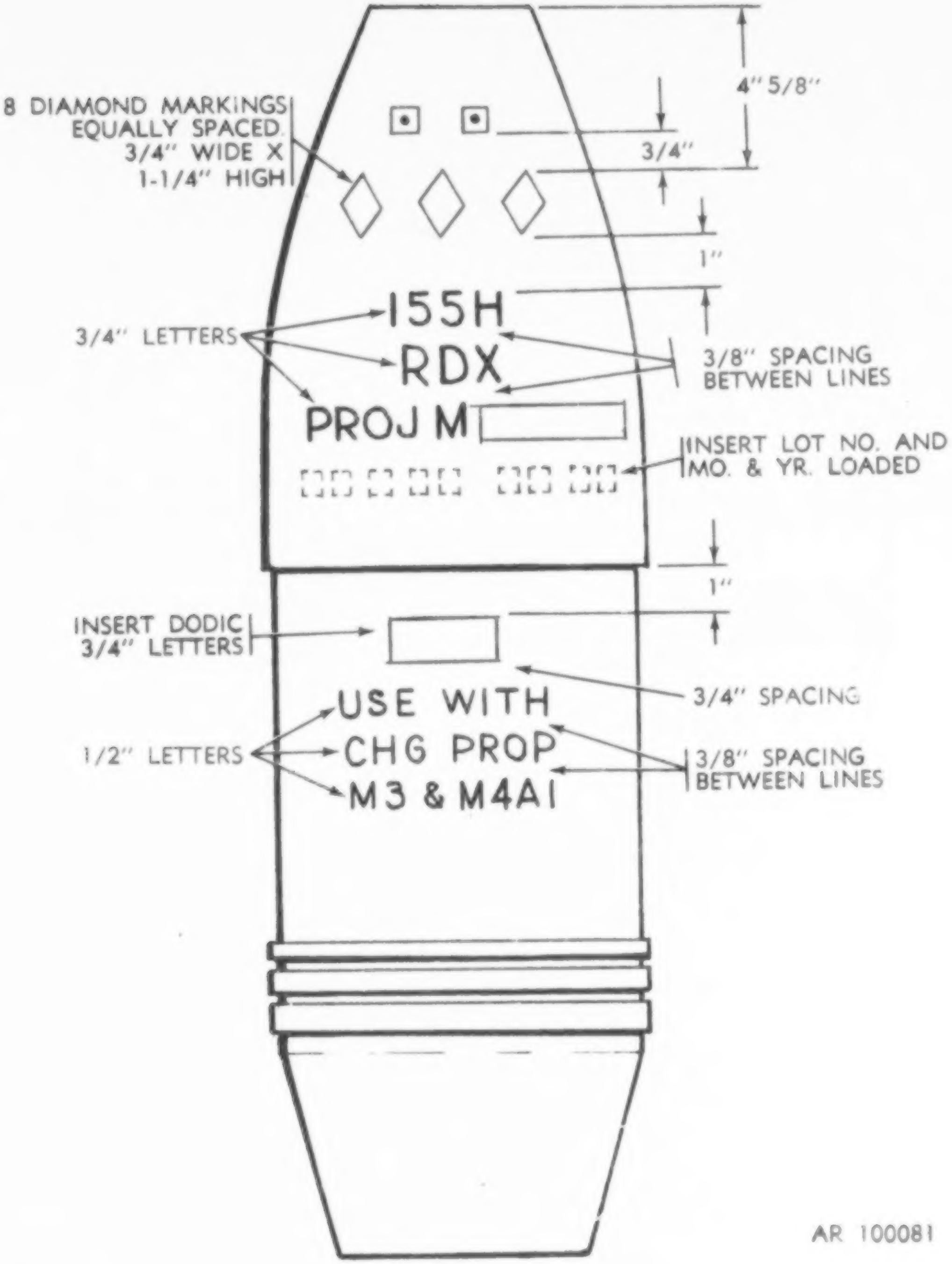
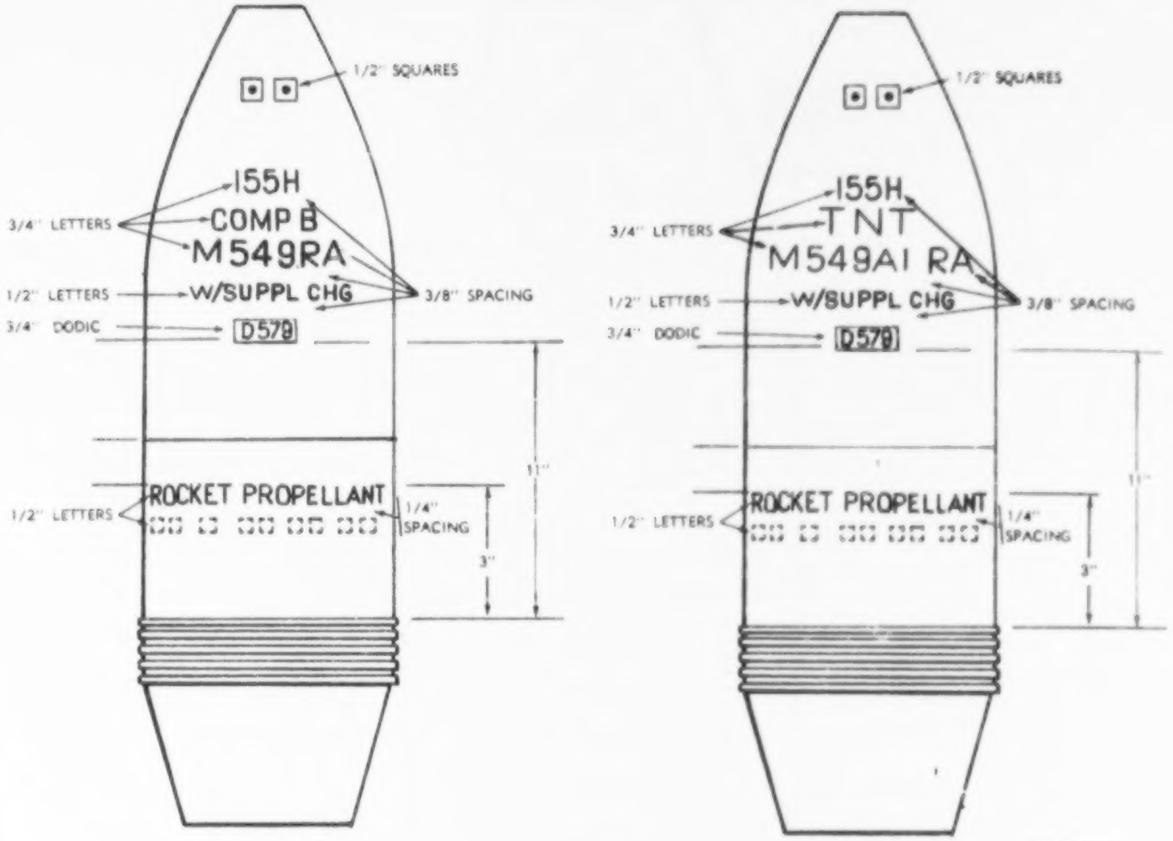

8 DIAMOND MARKINGS
EQUALLY SPACED
3/4" WIDE X
1-1/4" HIGH
4" 5/8"
3/4"
1"
155H
RDX
PROJ M
3/4" LETTERS
3/8" SPACING BETWEEN LINES
INSERT LOT NO. AND MO. & YR. LOADED
1"
INSERT DODIC 3/4" LETTERS
3/4" SPACING
USE WITH
CHG PROP
M3 & M4A1
1/2" LETTERS
3/8" SPACING BETWEEN LINES
AR 100081

Figure D-59. Typical marking for 155-mm howitzer projectile M449A1.


1/2" SQUARES
155H
COMP B
M549RA
3/4" LETTERS
1/2" LETTERS
W/SUPPL CHG
3/8" SPACING
3/4" DODIC
D579
11"
ROCKET PROPELLANT
1/2" LETTERS
1/4" SPACING
3"
1/2" SQUARES
155H
TNT
M549A1 RA
3/4" LETTERS
1/2" LETTERS
W/SUPPL CHG
3/8" SPACING
3/4" DODIC
D579
11"
ROCKET PROPELLANT
1/2" LETTERS
1/4" SPACING
3"

AR 101577

Figure D-60. Typical marking for 155-mm howitzer projectile M549.

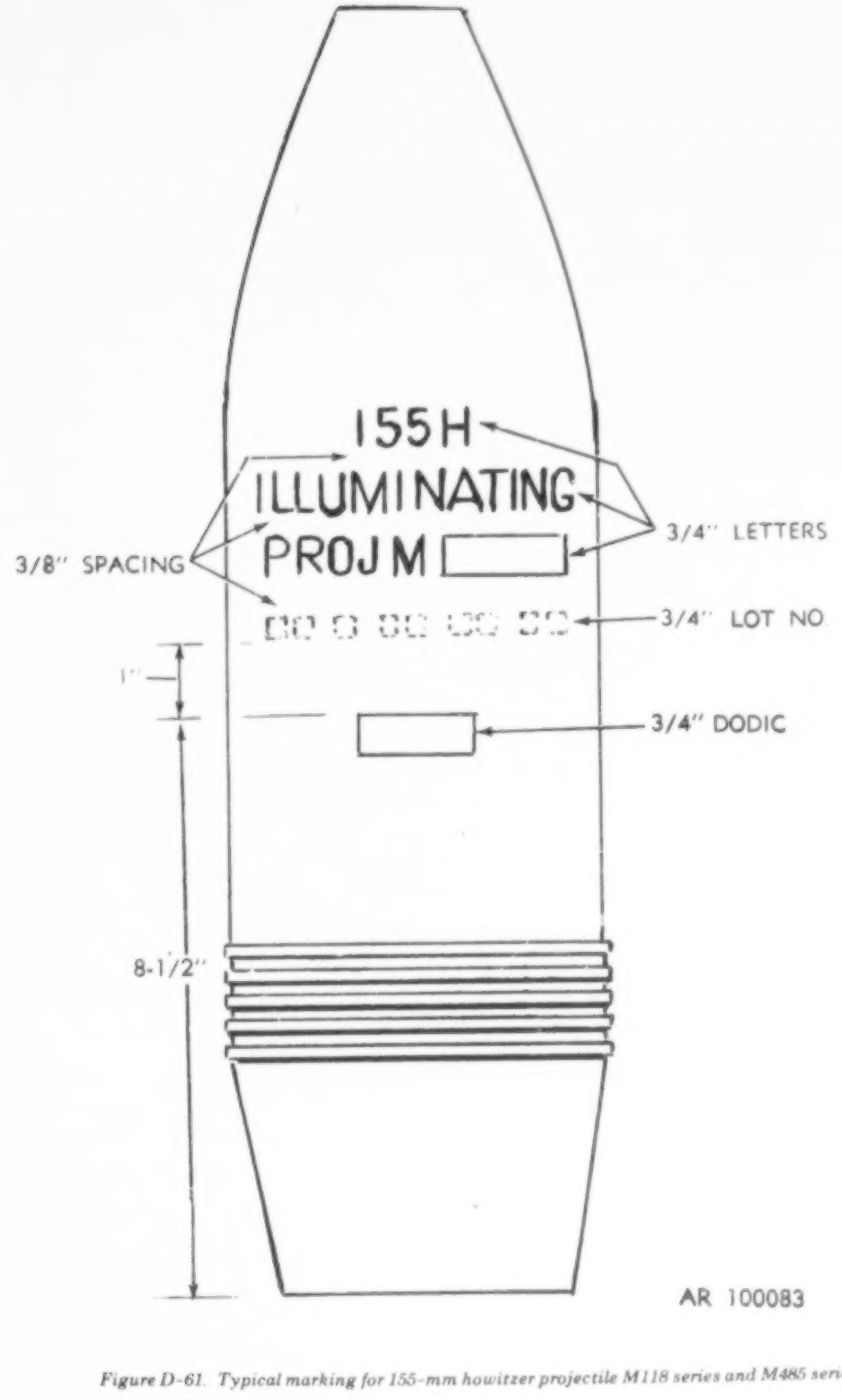

155H
ILLUMINATING
PROJ M
3/4" LETTERS
3/8" SPACING
3/4" LOT NO.
1"
3/4" DODIC
8-1/2"
AR 100083

Figure D-61. Typical marking for 155-mm howitzer projectile M118 series and M485 series.

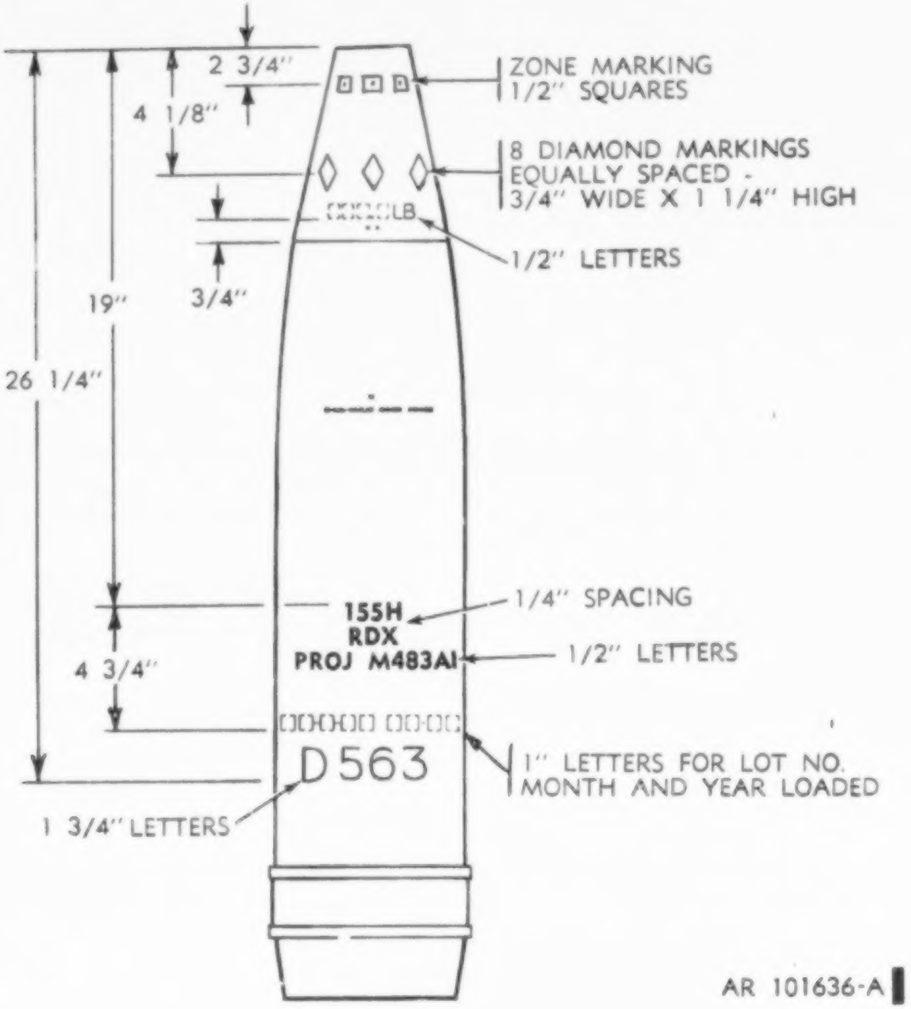

2 3/4"
4 1/8"
ZONE MARKING
1/2" SQUARES
8 DIAMOND MARKINGS
EQUALLY SPACED -
3/4" WIDE X 1 1/4" HIGH
LB
1/2" LETTERS
19"
3/4"
26 1/4"
155H
RDX
PROJ M483A1
1/4" SPACING
1/2" LETTERS
4 3/4"
D563
1" LETTERS FOR LOT NO.
MONTH AND YEAR LOADED
1 3/4" LETTERS
AR 101636-A

Figure D-62. Typical marking for 155-mm howitzer projectile M483A1.

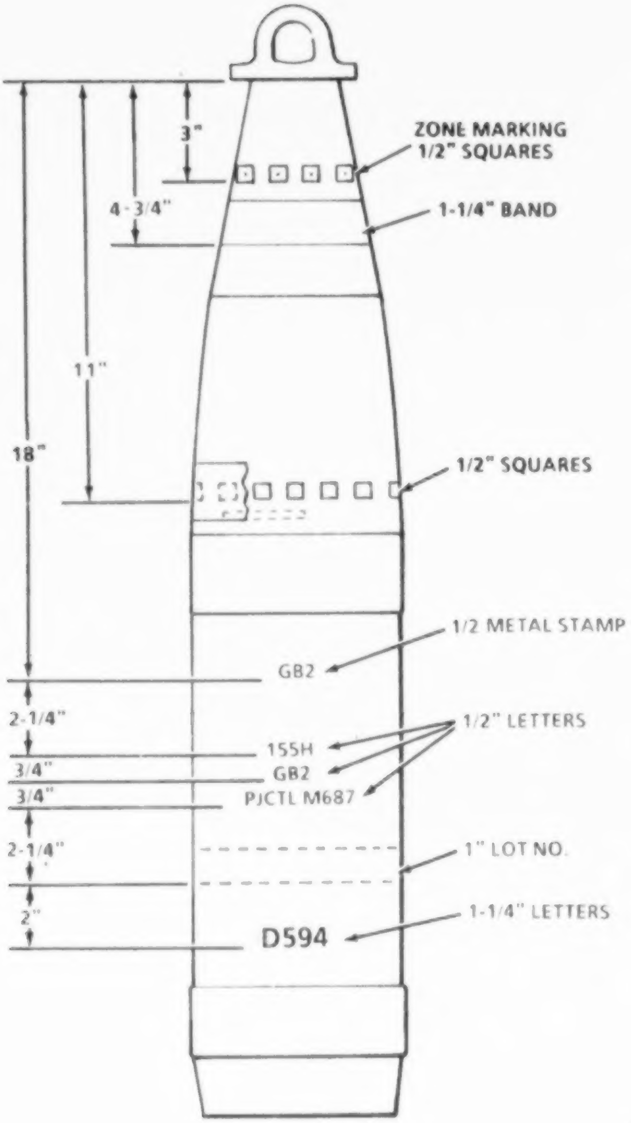

3"
ZONE MARKING
1/2" SQUARES
4-3/4"
1-1/4" BAND
11"
18"
1/2" SQUARES
1/2 METAL STAMP
GB2
2-1/4"
1/2" LETTERS
155H
3/4"
GB2
3/4"
PJCTL M687
2-1/4"
1" LOT NO.
2"
1-1/4" LETTERS
D594
ARD-2773

Figure D-62.1. Typical marking for 155-mm howitzer projectile, M687.

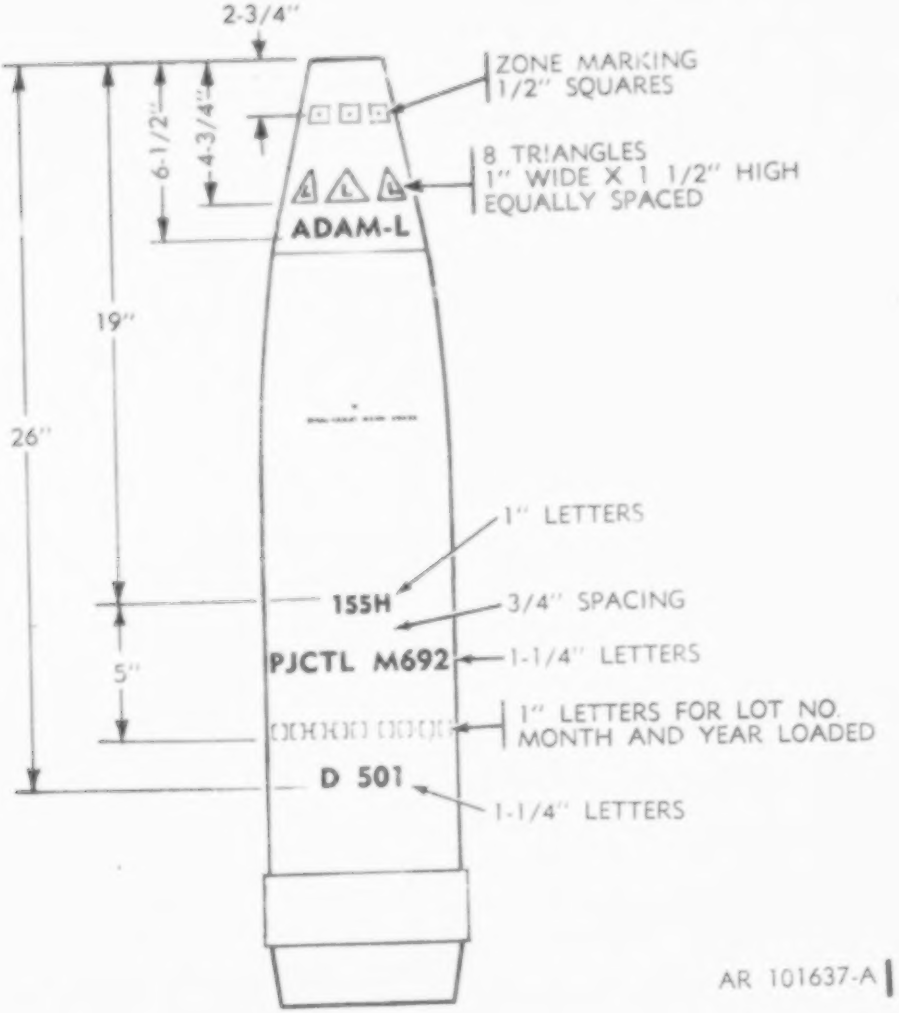

2-3/4"
ZONE MARKING
1/2" SQUARES
6-1/2"
4-3/4"
8 TRIANGLES
1" WIDE X 1 1/2" HIGH
EQUALLY SPACED
ADAM-L
19"
26"
1" LETTERS
155H
3/4" SPACING
PJCTL M692
1-1/4" LETTERS
5"
1" LETTERS FOR LOT NO.
MONTH AND YEAR LOADED
D 501
1-1/4" LETTERS
AR 101637-A

Figure D-63. Typical marking for 155-mm Howitzer projectile M692.

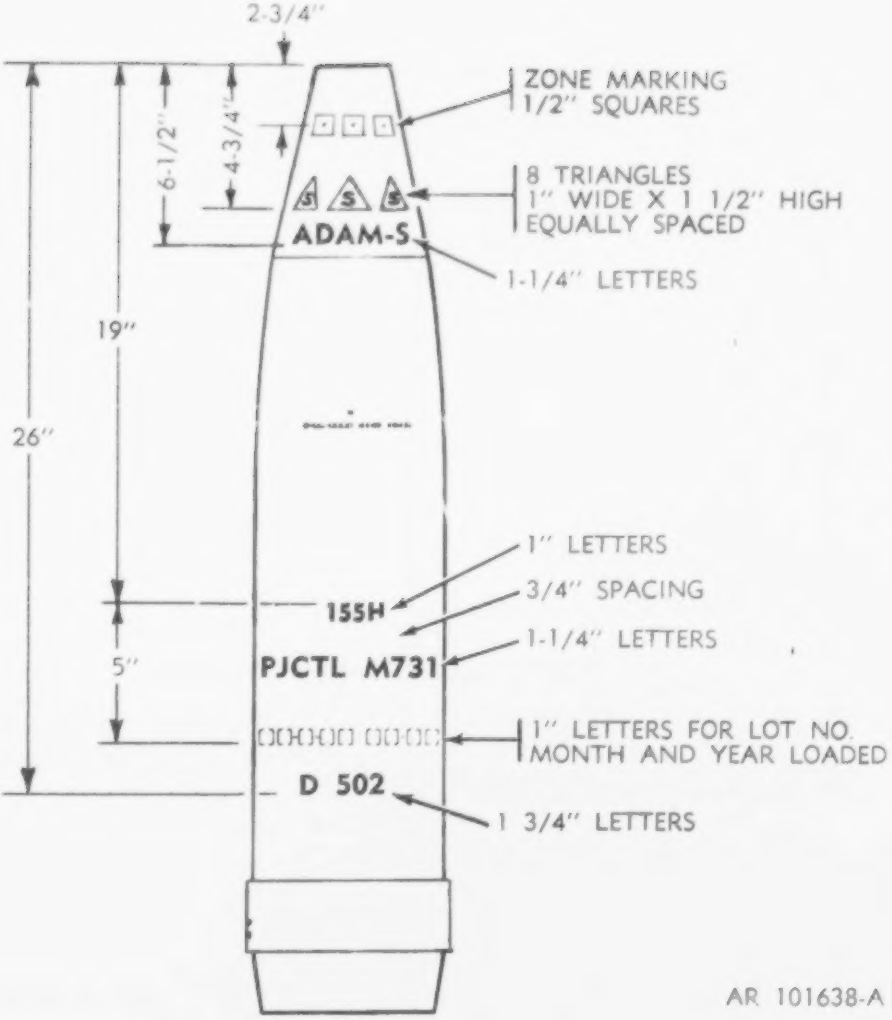

2-3/4"
ZONE MARKING
1/2" SQUARES
4-3/4"
6-1/2"
8 TRIANGLES
1" WIDE X 1 1/2" HIGH
EQUALLY SPACED
S
ADAM-S
1-1/4" LETTERS
19"
26"
1" LETTERS
155H
3/4" SPACING
5"
PJCTL M731
1-1/4" LETTERS
1" LETTERS FOR LOT NO.
MONTH AND YEAR LOADED
D 502
1 3/4" LETTERS
AR 101638-A

Figure D-64. Typical marking for 155-mm Howitzer projectile M731.

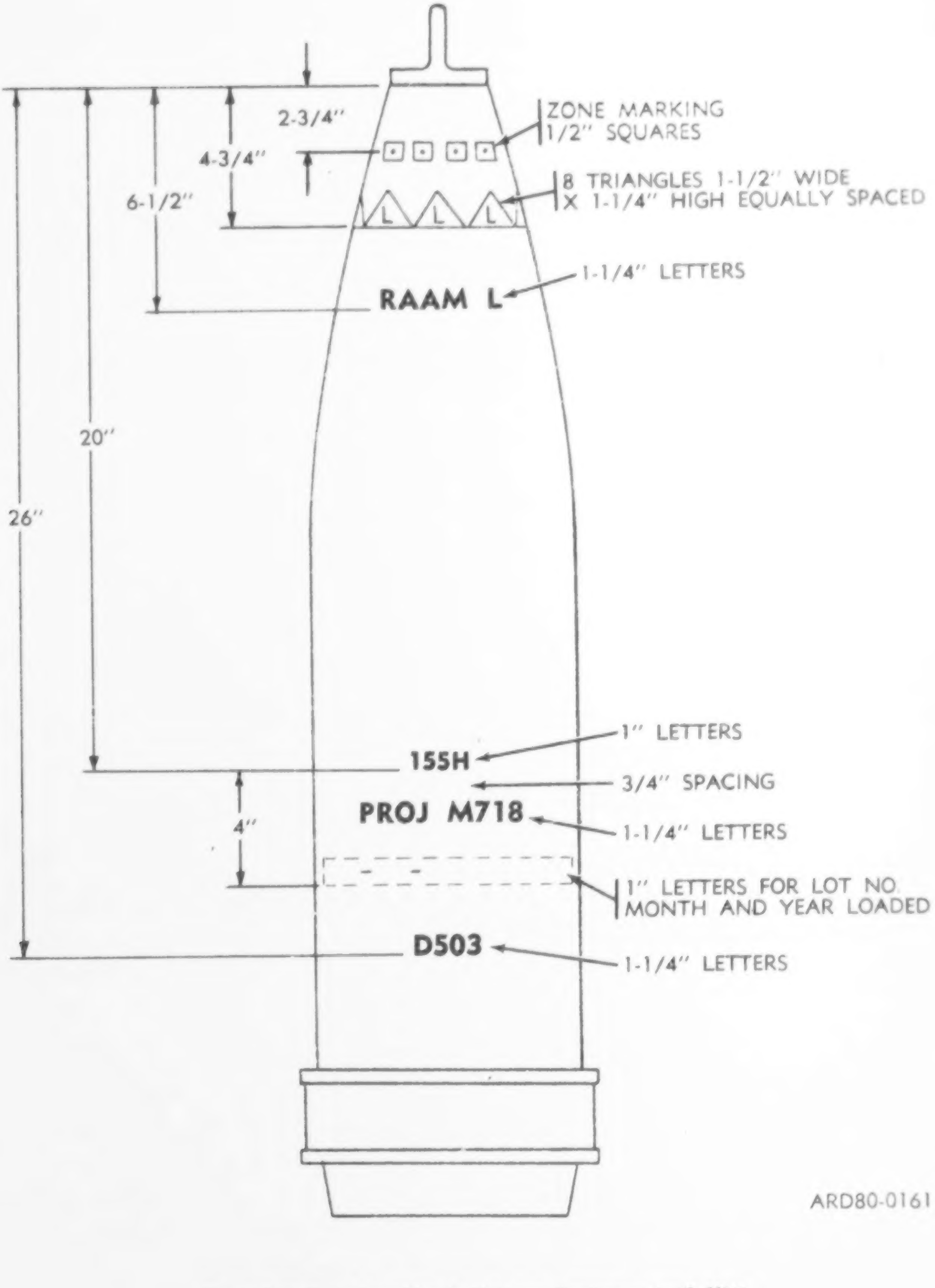

2-3/4"
4-3/4"
6-1/2"
20"
26"
4"
ZONE MARKING 1/2" SQUARES
8 TRIANGLES 1-1/2" WIDE X 1-1/4" HIGH EQUALLY SPACED
L
L
L
1-1/4" LETTERS
RAAM L
1" LETTERS
155H
3/4" SPACING
PROJ M718
1-1/4" LETTERS
1" LETTERS FOR LOT NO. MONTH AND YEAR LOADED
D503
1-1/4" LETTERS
ARD80-0161

Figure D-65. Typical marking for M155-mm Howitzer projectile M718.

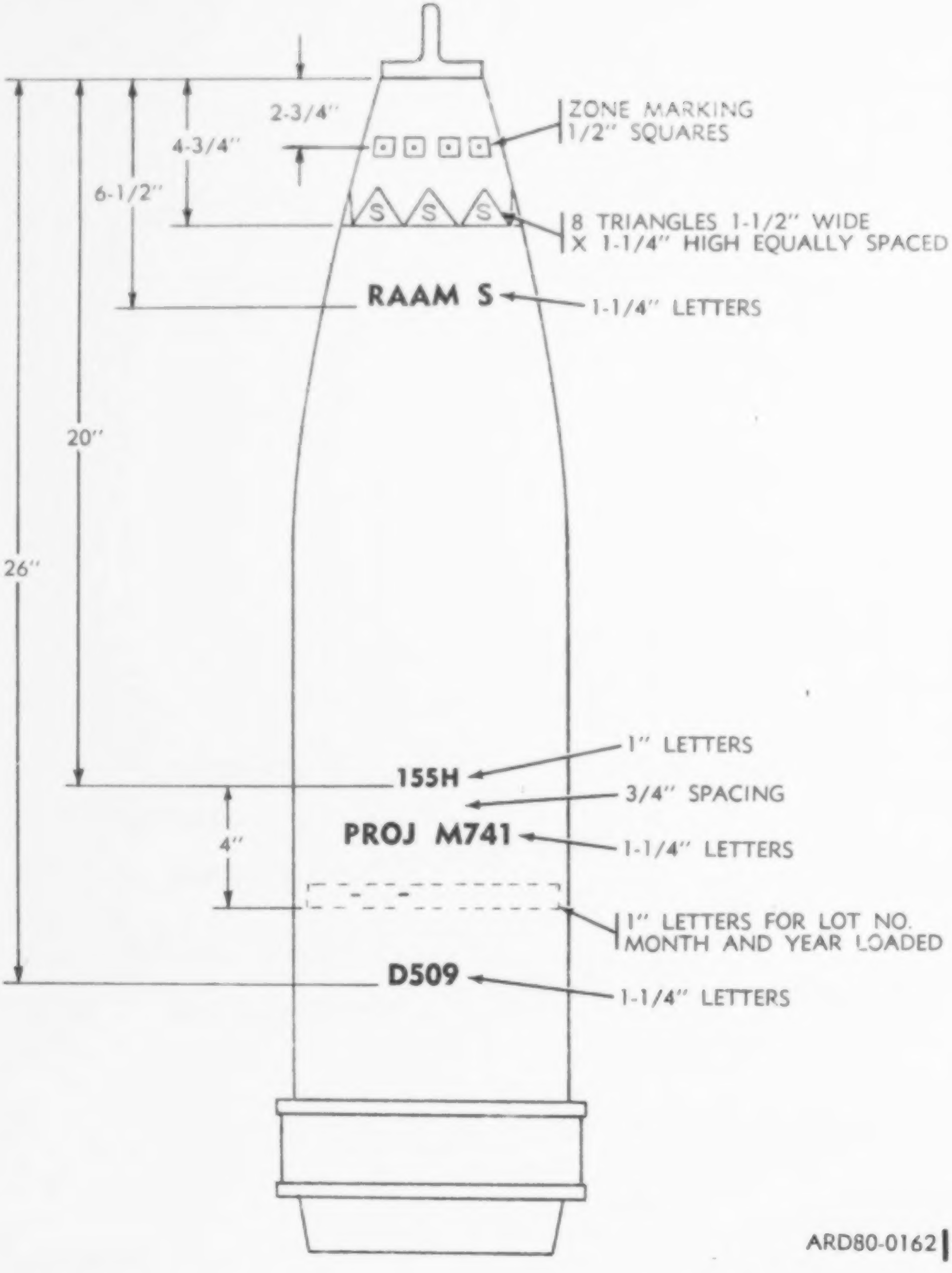

2-3/4"
4-3/4"
6-1/2"
20"
26"
4"
ZONE MARKING
1/2" SQUARES
S S S
8 TRIANGLES 1-1/2" WIDE
X 1-1/4" HIGH EQUALLY SPACED
RAAM S
1-1/4" LETTERS
1" LETTERS
155H
3/4" SPACING
PROJ M741
1-1/4" LETTERS
1" LETTERS FOR LOT NO.
MONTH AND YEAR LOADED
D509
1-1/4" LETTERS
ARD80-0162

Figure D-65.1. Typical Marking for M155-mm Howitzer projectile for M741.

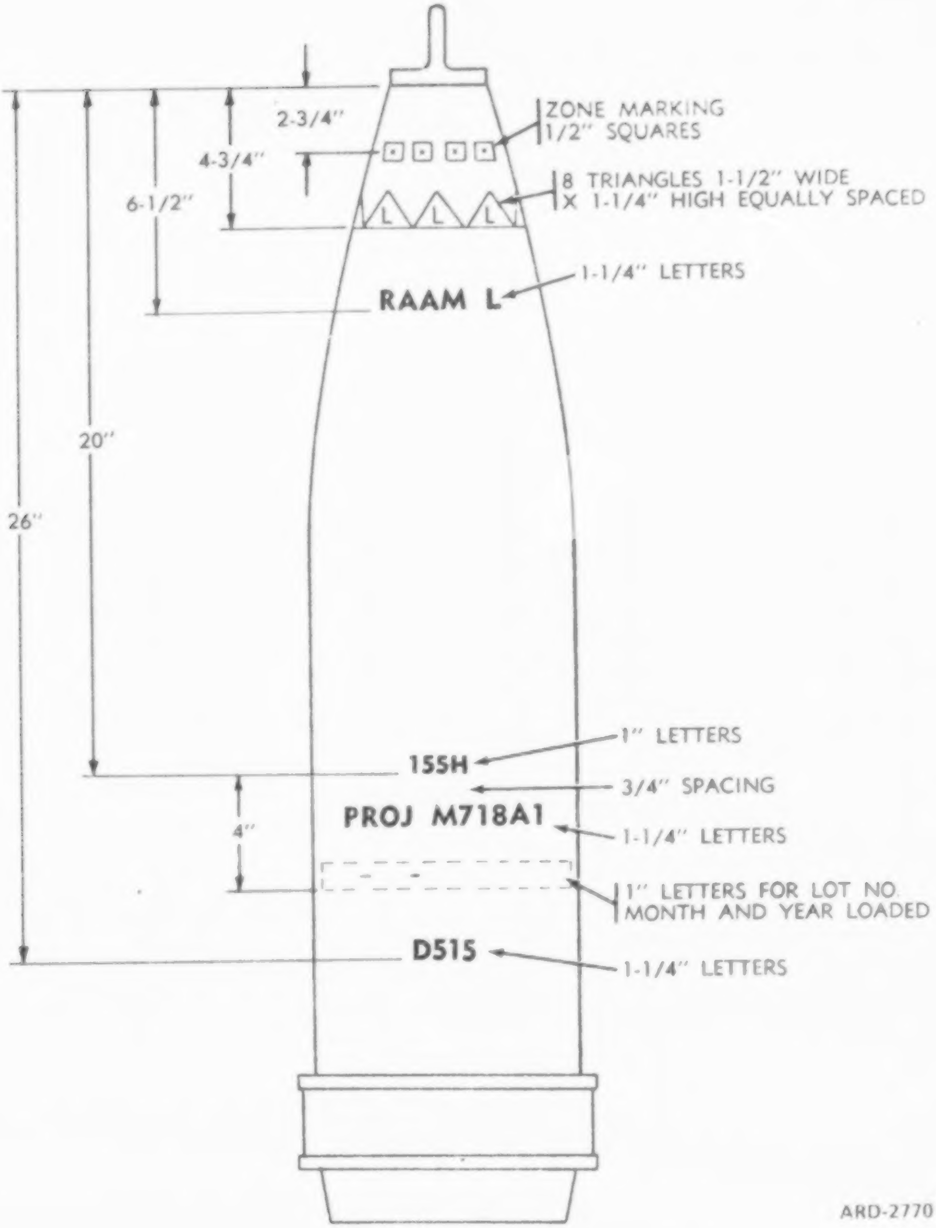

2-3/4"
4-3/4"
6-1/2"
20"
26"
ZONE MARKING
1/2" SQUARES
8 TRIANGLES 1-1/2" WIDE
X 1-1/4" HIGH EQUALLY SPACED
L
L
L
RAAM L
1-1/4" LETTERS
155H
1" LETTERS
3/4" SPACING
PROJ M718A1
1-1/4" LETTERS
4"
1" LETTERS FOR LOT NO.
MONTH AND YEAR LOADED
D515
1-1/4" LETTERS
ARD-2770

Figure D-65.2. Typical marking for 155-mm howitzer projectile, M718A1.

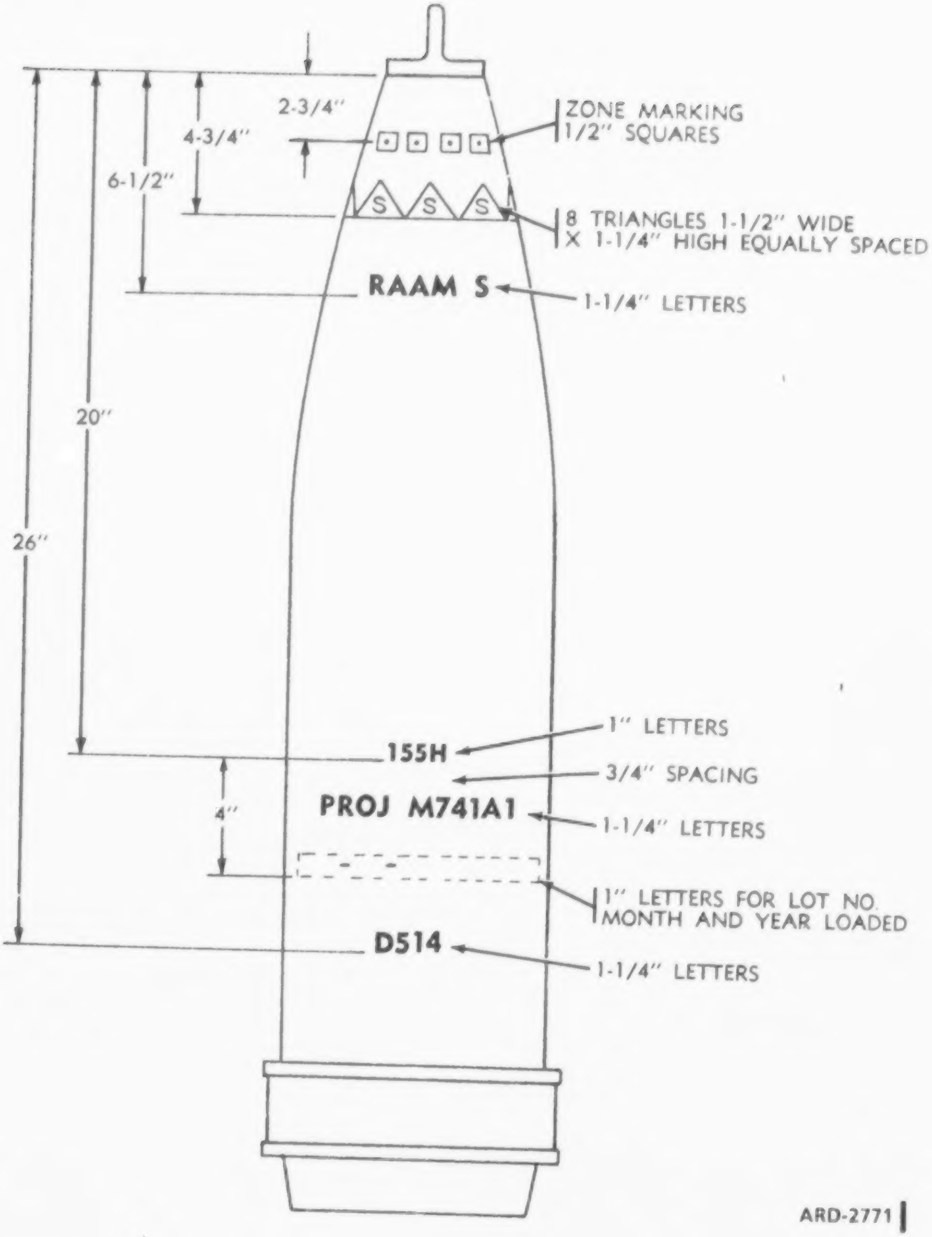

2-3/4"
4-3/4"
6-1/2"
20"
26"
4"
ZONE MARKING 1/2" SQUARES
8 TRIANGLES 1-1/2" WIDE X 1-1/4" HIGH EQUALLY SPACED
S
RAAM S
1-1/4" LETTERS
155H
1" LETTERS
3/4" SPACING
PROJ M741A1
1-1/4" LETTERS
1" LETTERS FOR LOT NO. MONTH AND YEAR LOADED
D514
1-1/4" LETTERS
ARD-2771

Figure D-65.3. Typical marking for 155-mm howitzer projectile, M741A1.

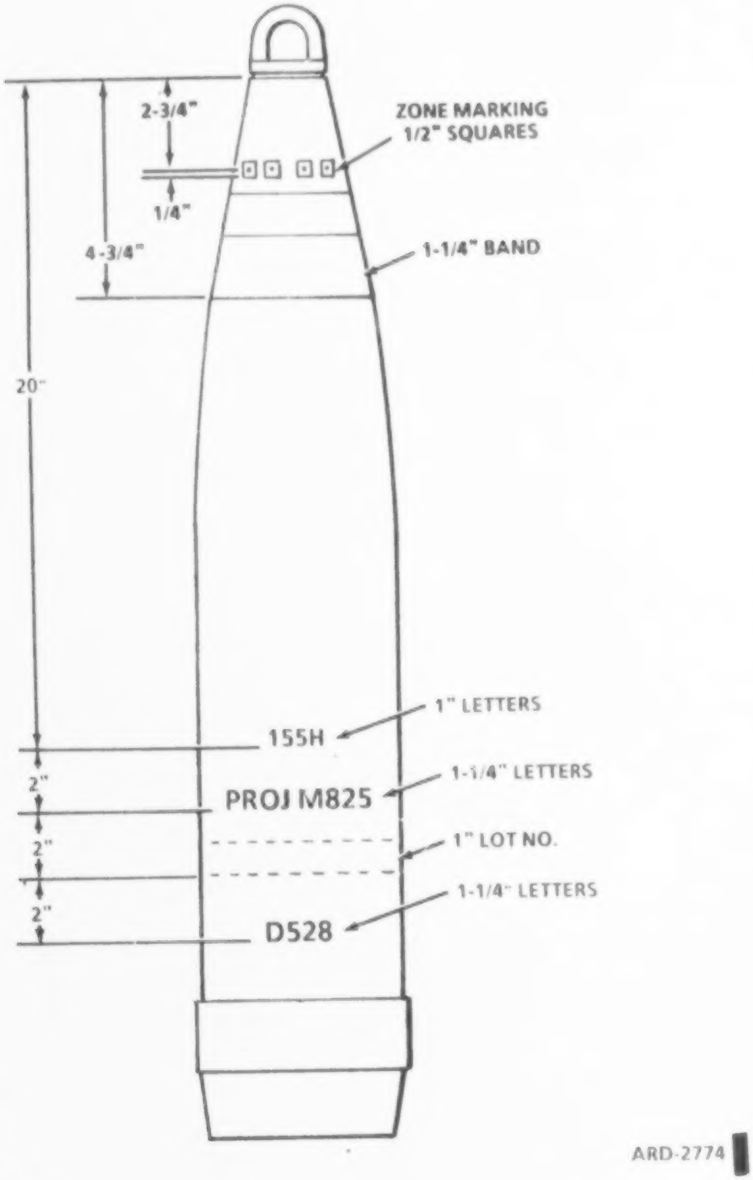

2-3/4"
ZONE MARKING
1/2" SQUARES
1/4"
4-3/4"
1-1/4" BAND
20"
1" LETTERS
155H
2"
1-1/4" LETTERS
PROJ M825
2"
1" LOT NO.
2"
1-1/4" LETTERS
D528
ARD-2774

Figure D-65.4. Typical marking for 155-mm howitzer projectile, M825.

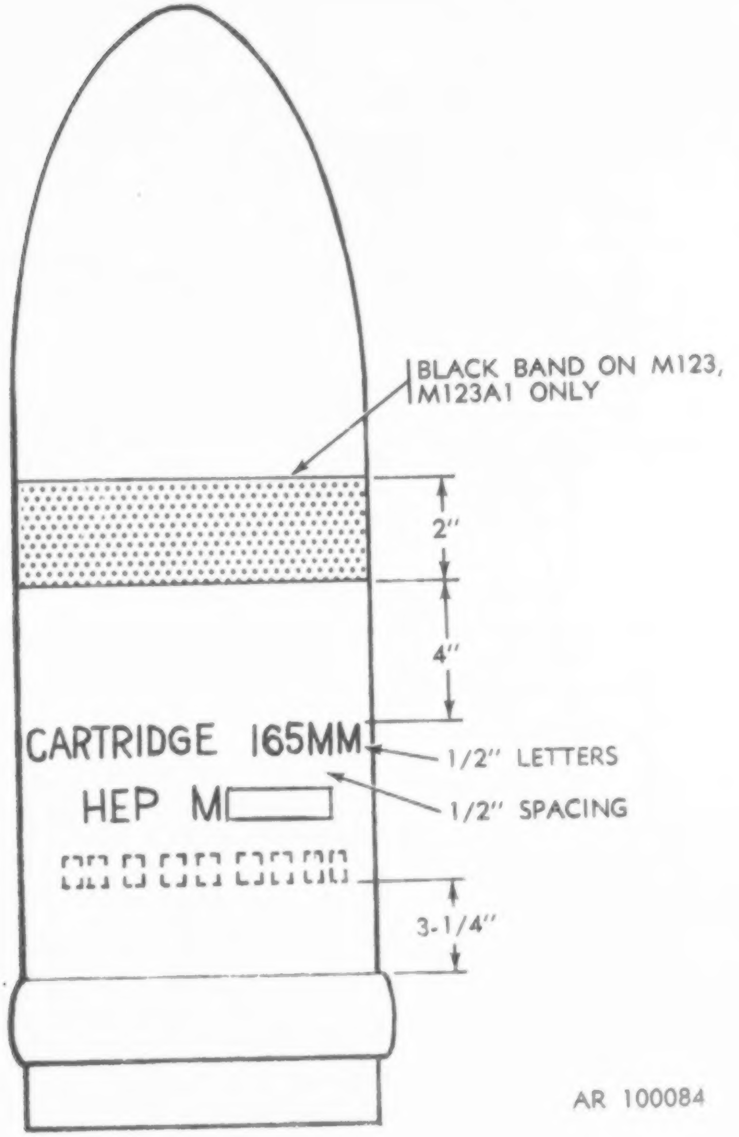

BLACK BAND ON M123,
M123A1 ONLY
2"
4"
CARTRIDGE 165MM
HEP M
1/2" LETTERS
1/2" SPACING
3-1/4"
AR 100084

Figure D-66. Typical marking for 165-mm gun projectiles M123 series and M623.

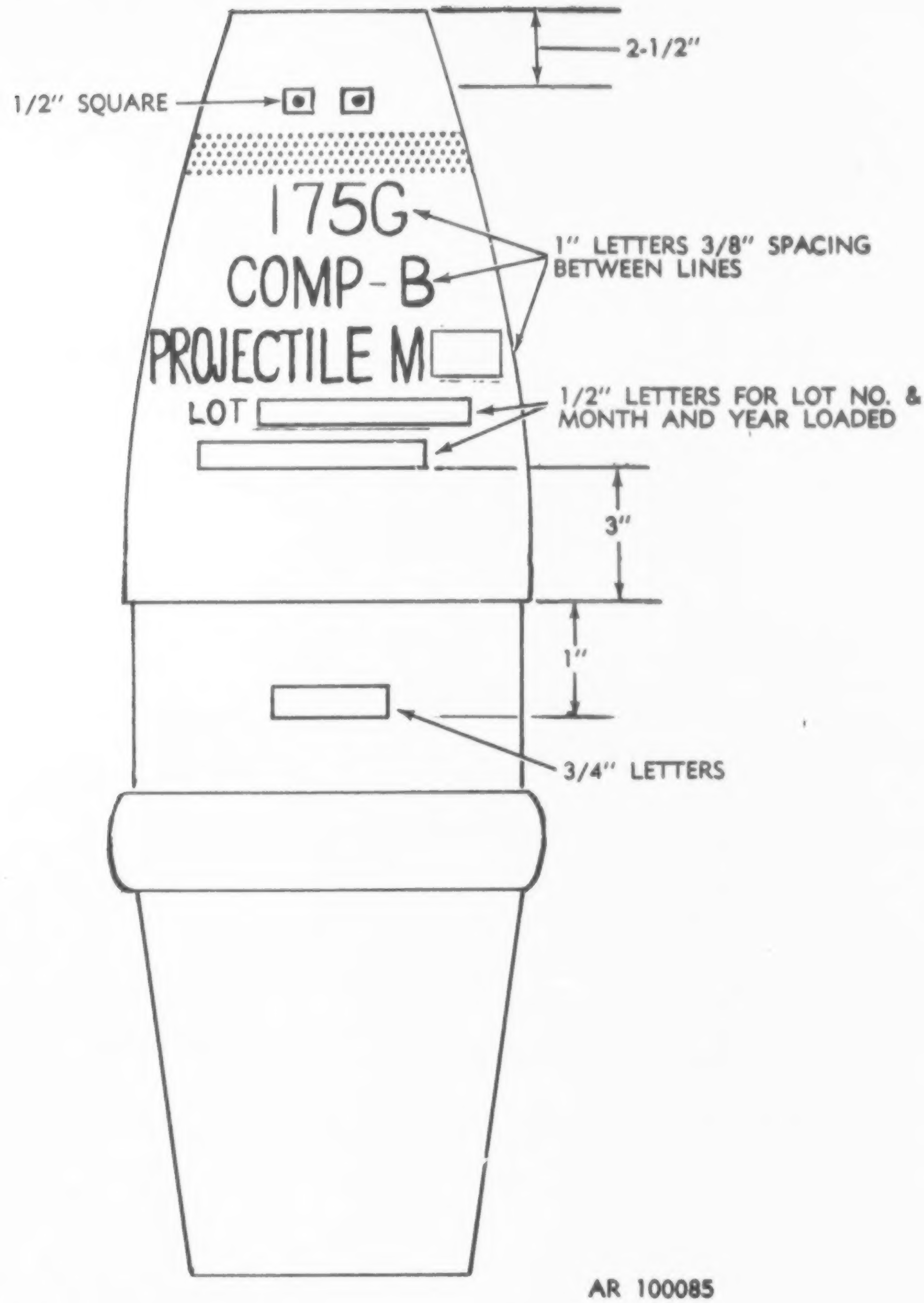

2-1/2"
1/2" SQUARE
175G
COMP-B
PROJECTILE M
1" LETTERS 3/8" SPACING BETWEEN LINES
LOT
1/2" LETTERS FOR LOT NO. & MONTH AND YEAR LOADED
3"
1"
3/4" LETTERS
AR 100085

Figure D-67. Typical marking for 175-mm gun projectile.

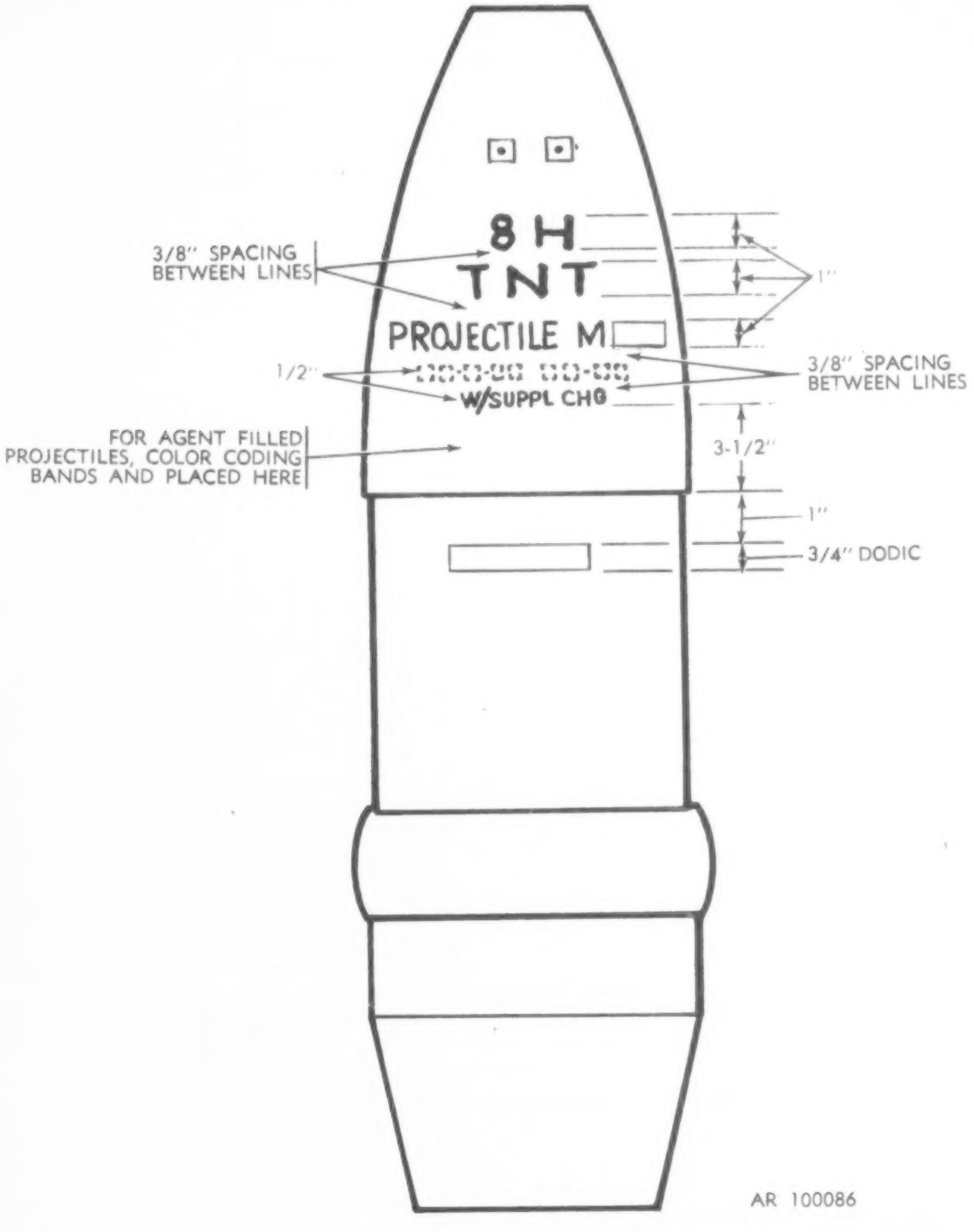
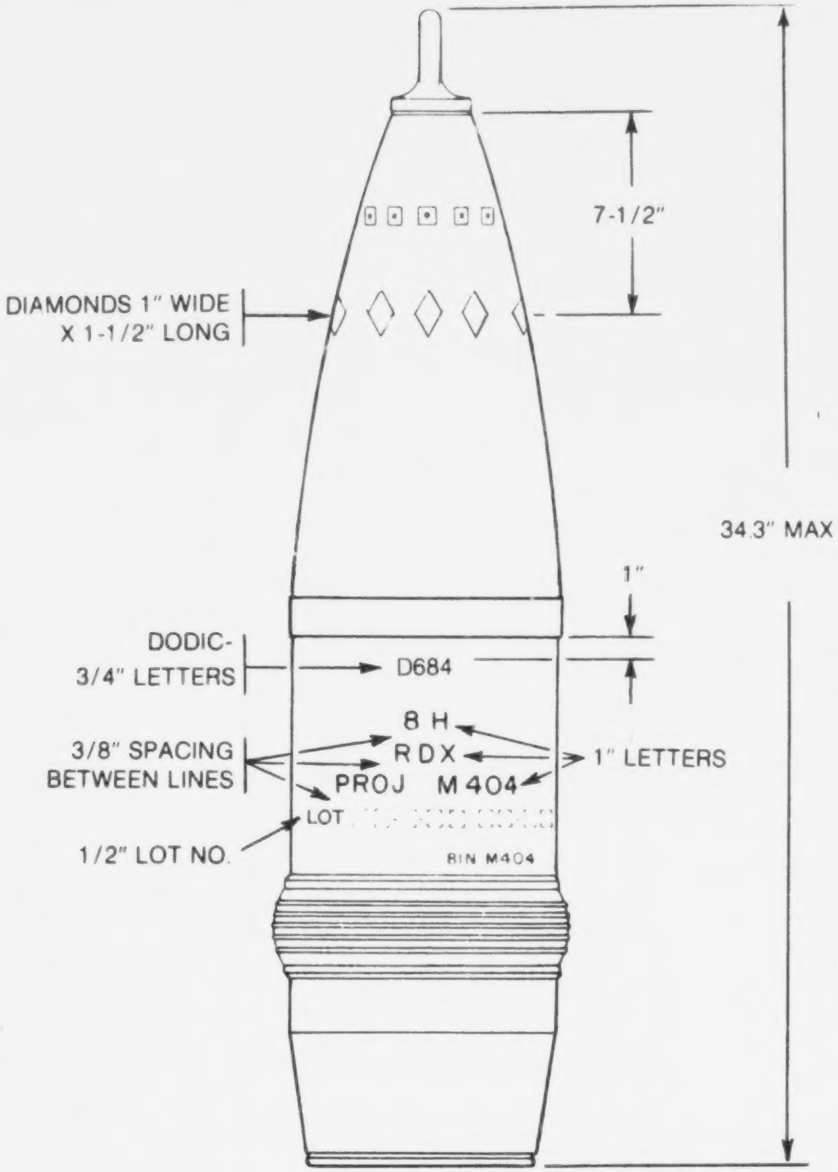

3/8" SPACING BETWEEN LINES
8 H
TNT
1"
PROJECTILE M
1/2"
3/8" SPACING BETWEEN LINES
W/SUPPL CHG
FOR AGENT FILLED PROJECTILES, COLOR CODING BANDS AND PLACED HERE
3-1/2"
1"
3/4" DODIC
AR 100086

Figure D-68. Typical marking for 8-in howitzer projectile M106.


7-1/2"
DIAMONDS 1" WIDE X 1-1/2" LONG
34.3" MAX
1"
DODIC-3/4" LETTERS
D684
8 H
R D X
PROJ M 404
3/8" SPACING BETWEEN LINES
1" LETTERS
LOT
1/2" LOT NO.
BIN M404

AR 199426-B

Figure D-69. Typical marking for 8-inch howitzer projectile M404.

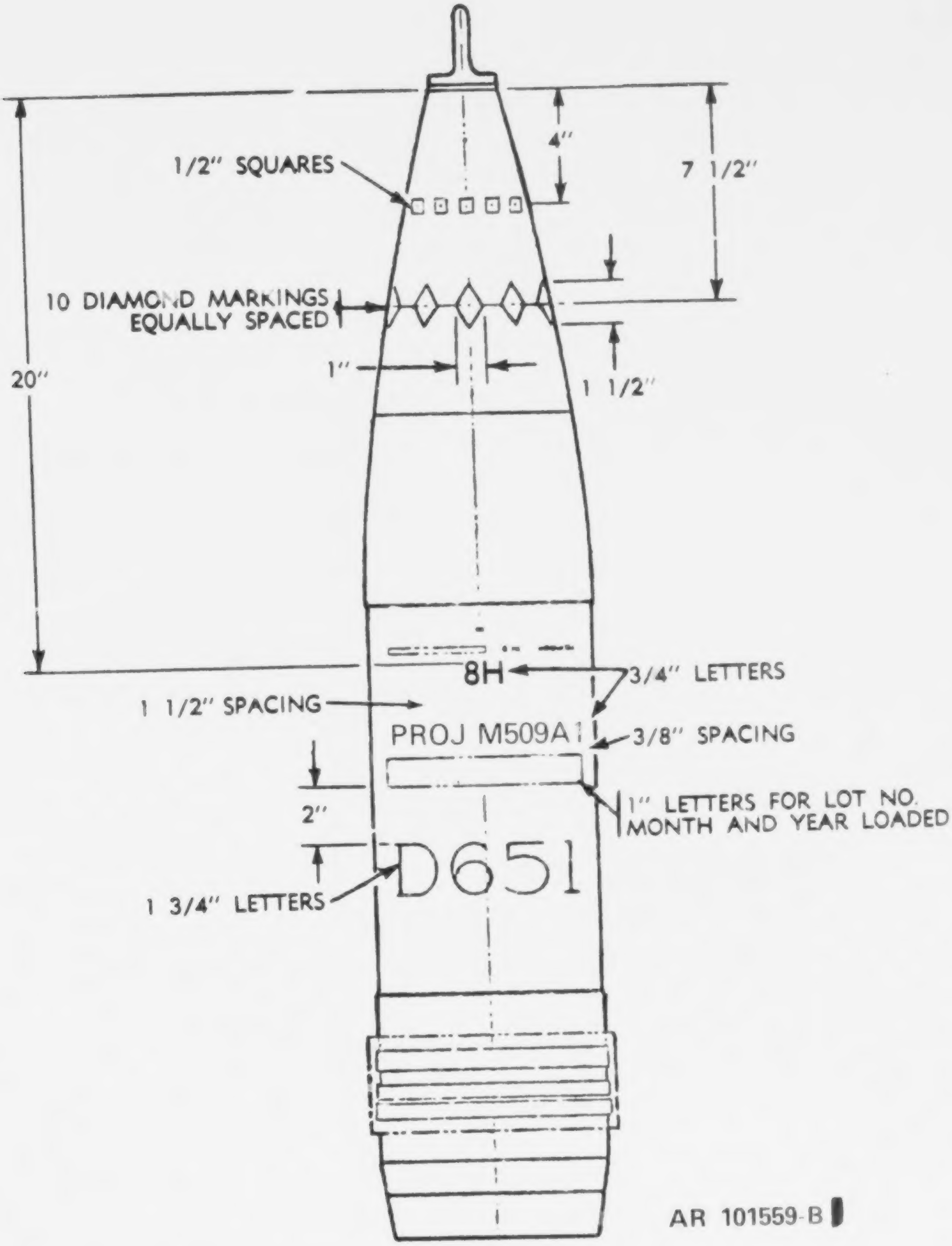

1/2" SQUARES
4"
7 1/2"
10 DIAMOND MARKINGS
EQUALLY SPACED
20"
1"
1 1/2"
8H
3/4" LETTERS
1 1/2" SPACING
PROJ M509A1
3/8" SPACING
2"
1" LETTERS FOR LOT NO.
MONTH AND YEAR LOADED
D651
1 3/4" LETTERS
AR 101559-B

Figure D-70. Typical marking for 8-inch howitzer projectile M509A1

best copy available

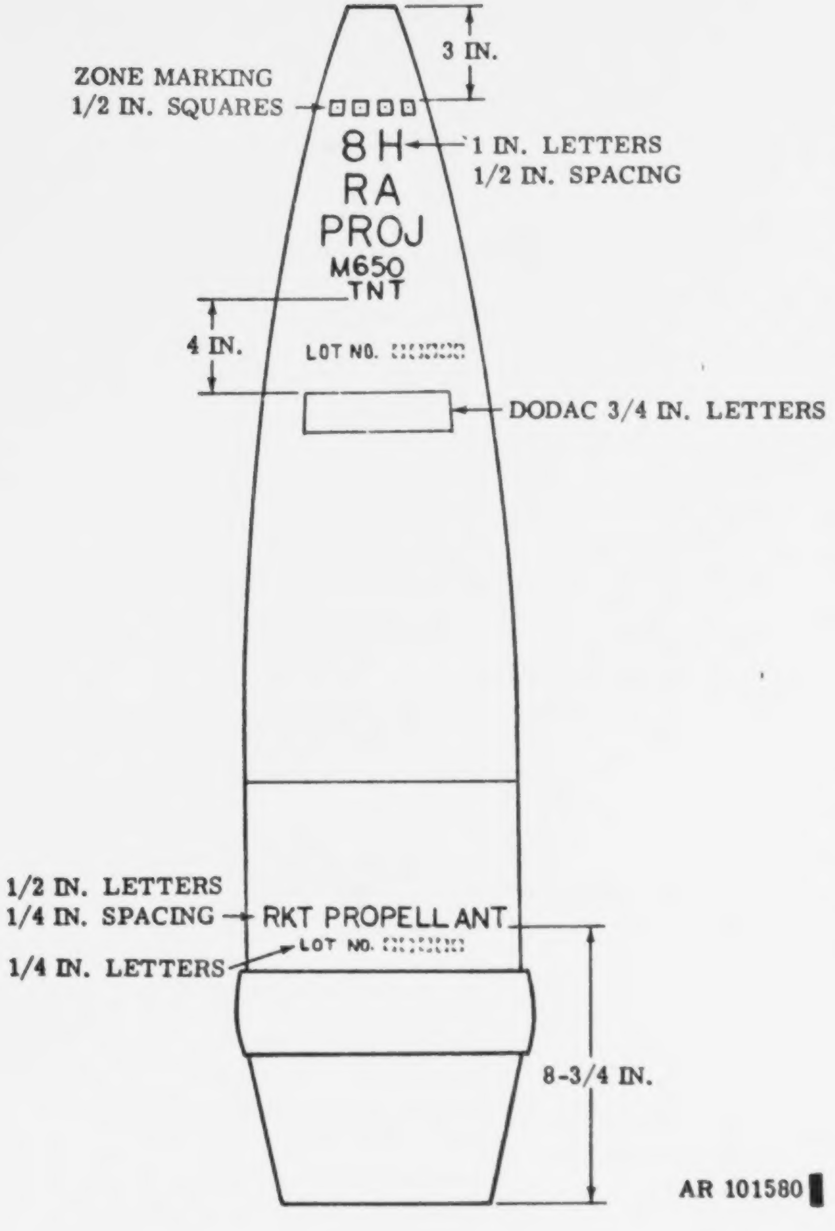
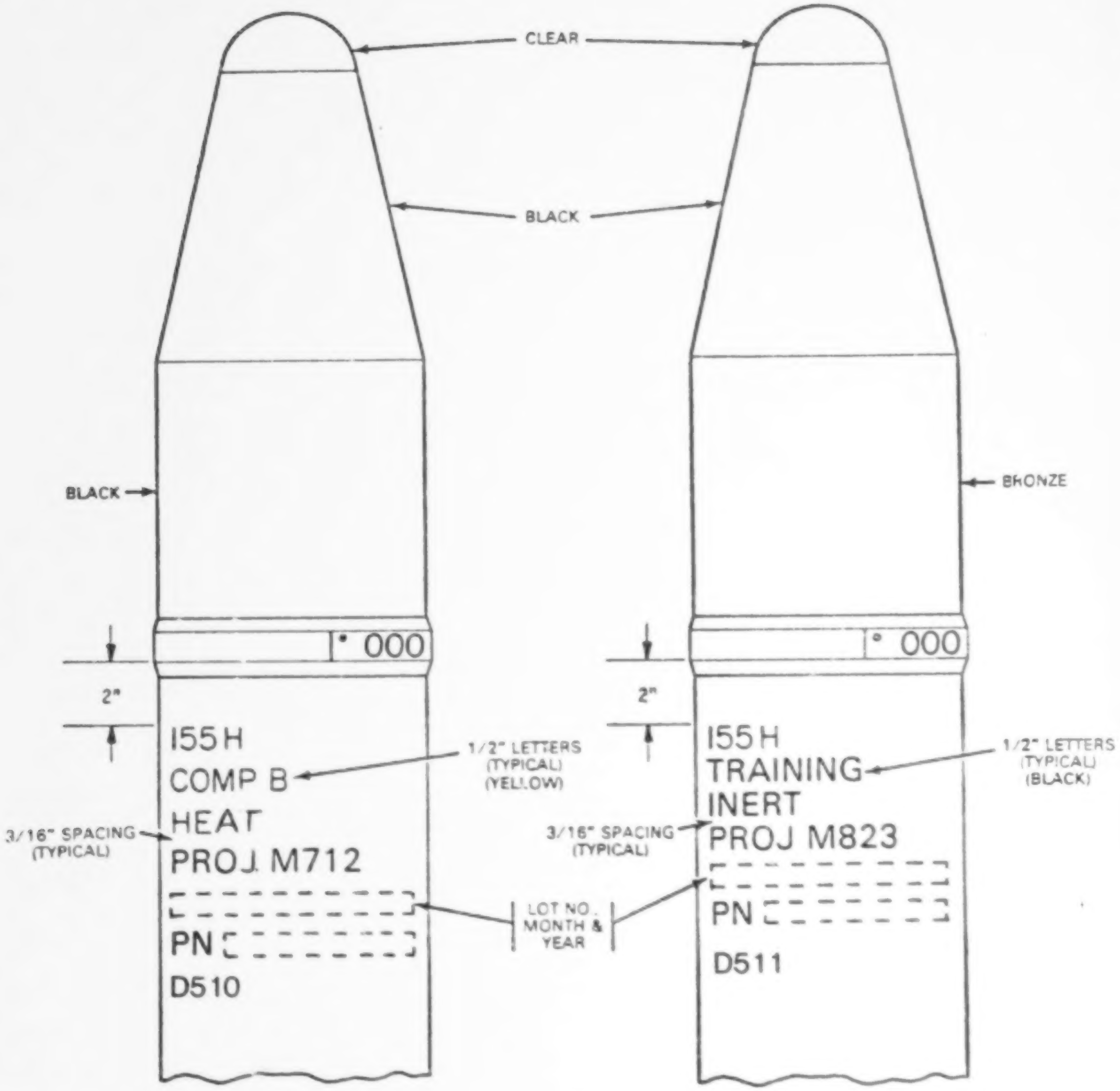

3 IN.
ZONE MARKING
1/2 IN. SQUARES
8 H
1 IN. LETTERS
1/2 IN. SPACING
RA
PROJ
M650
TNT
4 IN.
LOT NO.
DODAC 3/4 IN. LETTERS
1/2 IN. LETTERS
1/4 IN. SPACING
RKT PROPELLANT
LOT NO.
1/4 IN. LETTERS
8-3/4 IN.
AR 101580

Figure D-71. Typical marking for 8-inch, projectile M650.


CLEAR
BLACK
BLACK
BRONZE
° 000
° 000
2"
2"
155 H
COMP B
HEAT
PROJ. M712
PN
D510
155 H
TRAINING
INERT
PROJ M823
PN
D511
1/2" LETTERS (TYPICAL) (YELLOW)
1/2" LETTERS (TYPICAL) (BLACK)
3/16" SPACING (TYPICAL)
3/16" SPACING (TYPICAL)
LOT NO., MONTH & YEAR

ARD 81-0313-A

Figure D-72. Typical marking for 155-mm projectiles M712 and M823 (Copperhead)

APPENDIX E
Special Handling Equipment for Ammunition

E-1. Introduction

a. A new series of slings and beams specifically designed to handle palletized heavy projectiles has been added (1987) to the IDS, IGS Ammunition Tool Set (NSN 4940-00-322-6058). These items, which have been added to SC 4940-95-A11, are detailed in Table E-1 and illustrated in Figures E-1 through E-3.

b. Twice the number of slings to equip the beams authorized are provided to allow the operating unit to be rigging one set of pallets while another set is being lifted.

c. The slings and beams covered in this Appendix are designed specifically for lifting of palletized projectiles. A sufficient quantity has been authorized (1987) to equip all lifting equipment available in the standard AMMUNITION COMPANY TOE.

E-2. Operation

a. Operation of the Slings and Beams is to be in accordance with standard Army Materials Handling practice. Observe Cautions and Warnings at all times when using this equipment - it is designed to handle VERY HEAVY LOADS. Heavy loads must be treated with respect.

CAUTION

The six legged sling is designed to lift no more than two pallets of 8-inch or three pallets of 155mm projectiles. Never exceed these limits and always hook the sling to two projectile nose rings in each pallet.

b. The maximum rated lifting capacities are given in Table E-1 both in pounds and number of pallets. These limits must not be exceeded for reasons of potential damage to the equipment and safety of operating personnel.

CAUTION

Rig the sling to pallets only in the manners shown in Figures E-4 and E-5.

c. Rig sling to pallet of projectile before connecting the sling to the lifting hook. Rig the sling in accordance with figures E-4 (155mm projectiles) or E-5 (8-inch projectiles). Always assure that sling cables are not kinked such that they will loop when lifted.

d. Assure that quick release pin is securely in position before using the double beam. Suspend beam across bed of transport vehicle when hooking a load.

e. When hooking beam to crane, assure that chains are not twisted to assure that they will not loop when the beam is lifted.

WARNING

ALWAYS USE A GUIDE LINE TO MANEUVER THE BEAMS. NEVER MANEUVER THE BEAMS BY HAND-SEVERE PERSONNEL DAMAGE OR EVEN DEATH COULD RESULT.

CAUTION

Always assure that an equal number of the same size pallets are secured to the opposite ends of the beams. An unbalanced load can cause a great deal of damage when lifted.

f. Slings must be attached to the beams in a balanced manner. Always assure that each one of a pair of lifting hooks is positioned equally distant from the center of the beam, and that each of the pair has an identical load. This will assure a level, controllable lift of the load. A guide line must be attached to one end of the beam to facilitate maneuvering of the load. The center hook on the beams is to be used only when an odd number of pallets is to be lifted. Be especially careful not to exceed the maximum loads allowed when using the center hook.

g. Maintenance of this equipment is primarily the responsibility of the using unit. No formal PMCS is required, however, each piece should be visually inspected and checked to assure it is securely assembled and undamaged. Do not use a sling leg with a broken or severely rusted cable strand. Obtain a replacement sling as soon as possible.

h. Nut and bolt type component replacement is authorized on both the single and double beams to the extent allowed by the parts given in Table E-2. Table E-2 is given in lieu of a RPSTL which will be issued when the beams are Type Classified Standard as separately issued items.

TABLE E-1
SLINGS AND BEAMS FOR AMMUNITION HANDLING

NSN	Item	Quantity Authorized (For Total Set)
3940-01-241-7400	Sling, Multiple Leg	112
3940-01-247-3681	Beam, Single	8
3940-01-247-3682	Beam, Double	10

NOTE: These are maximum quantities. The actual number kept on hand will be at the discretion of the company commander.

TABLE E-1a
SLINGS AND BEAMS FOR AMMUNITION HANDLING
(LIFTING CAPACITY)

Maximum Lifting Capacity		Maximum Number Slings	Maximum Number Pallets	
Hook (lb)	Total (lb)		155mm	8 inch
900	5400	N/A	3	2
2750	5500	2	6	4
2750	11,000	4	12	8

TABLE E-2
REPLACEMENT PARTS FOR AMMUNITION HANDLING SLINGS

NSN	Item	Quantity Single Beam	Quantity Double Beam
3940-01-248-6454	Link, Hoisting	1	1
4010-01-113-2106	Link, Chain Detachable	6	12
4010-00-824-1404	Chain, Welded	2	4
5305-00-942-2196	Screw, Cap, Hexagon H	4	8
5305-00-044-4153	Screw, Cap, Hexagon H	4	8
5310-00-637-9541	Washer, Lock	4	8
5310-00-584-5272	Washer, Lock	4	8
4010-01-242-8777	Link, Chain, End	2	4
5305-01-240-4024	Screw, Cap, Hexagon H	1	1
5310-01-077-9743	Nut, Plain, Slotted, H	1	1
5315-00-298-1481	Pin, Cotter	1	1
4030-01-241-7269	Hook, Hoist	3	5
5305-01-245-0706	Screw, Cap, Hexagon		1
5310-00-823-8803	Washer, Flat		1
5340-01-247-5481	Pin, Quick Release		1
3940-01-247-7400	Sling, Multiple Leg		1

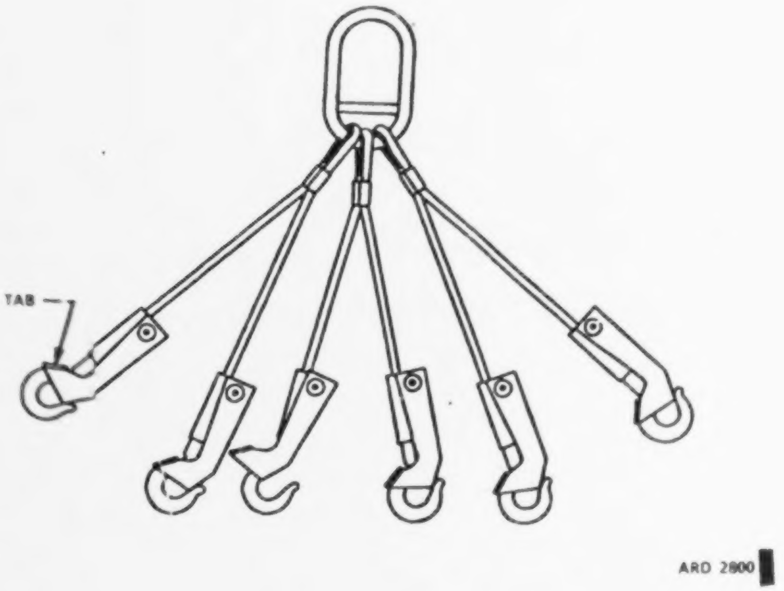


Figure E-1. Six legged sling, palletized projectile.

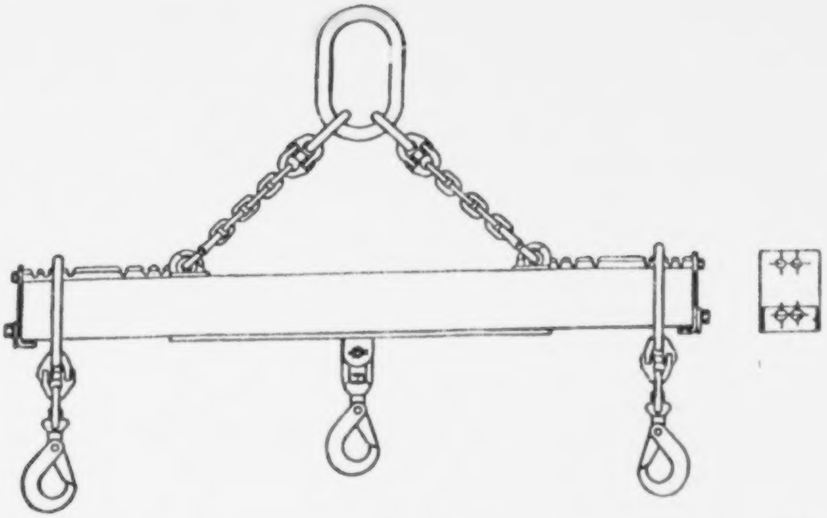


Figure E-2. Single beam, palletized projectile.

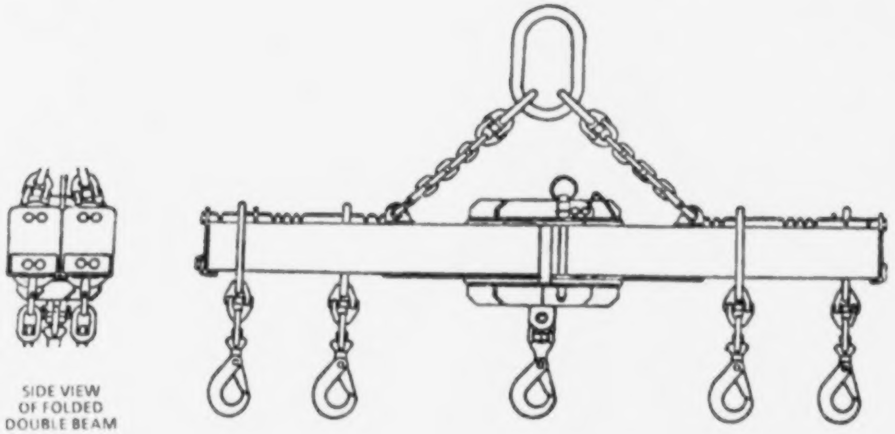
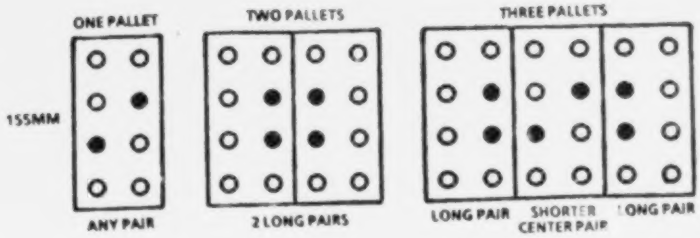

SIDE VIEW
OF FOLDED
DOUBLE BEAM
ARD 2802

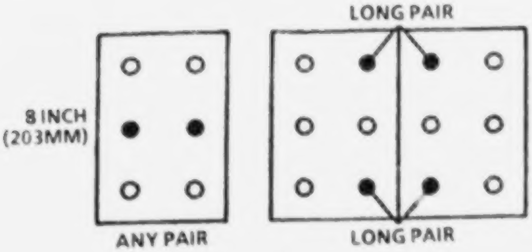
Figure E-3. Double beam, palletized projectile.


ONE PALLET
TWO PALLETS
THREE PALLETS
155MM
ANY PAIR
2 LONG PAIRS
LONG PAIR
SHORTER CENTER PAIR
LONG PAIR

ARD 2803

Note: Projectiles to be hooked are indicated by darkened circles.

Figure E-4. Rigging of 155mm palletized projectiles.


LONG PAIR
8 INCH (203MM)
ANY PAIR
LONG PAIR

ARD 2804

Note: Projectiles to be hooked are indicated by darkened circles.

Figure E-5. Rigging of 8-inch palletized projectiles.

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FRED C. WEYAND
General, United States Army
Chief of Staff

Official:
VERNE L. BOWERS
Major General, United States Army
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